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ABSTRACT

Research pertaining to infant care and development is surveyed for the purpose of providing information for the improvement of services for school-age parents with infants. Computerized searches were used to identify relevant materials dated 1967-72. Studies dealing with infant development (e.g., perception, conditioning, the infant-adult relationship), infant education and intervention, day care, child rearing patterns, and theoretical and methodological issues are abstracted. Evaluative comments about some materials are found following the abstract. (BRT)

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INFANT CARE

Abstracts of the Literature

by

Tannis M. Williams, Ph.D.

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The actual reading and writing of these abstracts constituted only one part of the effort that went into their production. I would therefore like to express my gratitude to a number of people whose efforts were instrumental in getting the task accomplished. Through her efforts on behalf of school-age pregnant girls, Marion Howard became aware of the lack of knowledge concerning the childrearing practices of young parents, and the need for a survey of work related to infant care. Once the task had been conceptualized, Linda Jenstrom was responsible for the success of the acquisition effort; she also took on most of my responsibilities when I was reading and writing, and did initial editing. Ruth Morine spent her days (and many evenings) editing, and taking pains to ensure that articles and references were located and that things generally got done in the right order. Lucille Eddinger was also very helpful in editing. Considering my handwriting, those responsible for typing have made the most admirable of all of the efforts. Kathie Trader worked particularly hard to ensure that the final product was done well; she was given considerable assistance by Pat Carter, Clarissa Di Francis, Marilyn Hertzberg, Donna Lamoureux and Judy Taylor. And in the end, J.R. also typed (in order to get his wife home). He deserves special thanks.

T.M.W.

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PREFACE

For the past several years the Consortium on Early Childbearing and Childrearing has been working to improve services available in this country to school-age parents. One of the areas of concern to those working with young parents is how best to help them meet the needs of their infants. Accordingly, a major review of the literature was undertaken in the hope of finding out as much as possible about young parents and their infants.

A comprehensive approach was taken to identify work which had addressed questions concerning infant development, infant care, infant education and intervention, day care, mother-infant interaction, child-rearing practices, and adolescent parenting. As a starting point, the abstracts describing research on file in the ERIC system were searched by computer, and the Psychological Abstracts files were also computer-searched using the PASAR system. The Child Development Abstracts of the Society for Research in Child Development were used to identify articles, as were the 1969-1972 volumes of the Child Development and Developmental Psychology journals and the Journal of Experimental Child Psychology. The programs from the 1967, 1969 and 1971 biennial meetings of the Society for Research in Child Development were perused, along with the programs from the 1969-1972 annual meetings of the American Psychological Association, Eastern Psychological Association and Midwestern Psychological Association. Postcards requesting copies of papers were sent to all authors whose abstracts or paper titles indicated that the material might be relevant. Finally, personal letters were sent to about 75 individuals who were known to be working in one or more of the areas of interest. The purpose of the project was described, along with the kinds of information sought, and copies of related reprints, preprints, unpublished manuscripts, speeches, etc. were requested. As a result of these efforts, over 500 articles, manuscripts, papers, handbooks, etc. were received.

Decisions as to what would be read in detail and abstracted were made somewhat arbitrarily. Priority was given to documents which were directly addressed to topics of concern to those working to improve the quality of infant care. These materials seemed to fall into five major areas into which the abstracts have been categorized, again somewhat arbitrarily. The first group of articles has been titled Infant Development; it includes research which has some direct repercussions for infant care but does not fit into one of the other categories. Basic studies of infant development (perception, conditioning and so forth) for which applications are less clear have not been included. Such work is not unimportant (it is clearly helpful to know what an infant of a particular age can see if one is interested in providing visual stimulation) but it was impossible to include everything. The

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second and third categories, The Infant-Adult Relationship and Childrearing Patterns, overlap somewhat, but in general the former contains studies of interaction between infants and adults (usually their mothers) and the latter contains studies in which the focus was on the childrearing practices of groups, or individuals as group members, rather than on the particular interactions involved in childrearing. The fourth category, Infant Education, Intervention, and Day Care, contains descriptions and results of projects directly concerned with infant care. In general, material which is primarily related to care for children over two years of age has not been included in these abstracts. There is a great deal of such material and it is quite readily available elsewhere. On the other hand, research and demonstration work in the areas of intervention, education, and group care for infants is very recent, and is burgeoning, so much of the information abstracted here has not yet been published. The final category, Theoretical and Methodological Issues, includes papers which raise issues important in a variety of ways to the work abstracted in the other categories.

While this survey of the literature has revealed depressingly little per se about young parents and their infants, it has turned up a great deal of information which would be of interest to those working with infants and parents in general and which may have important ramifications for those more specifically concerned with school-age parents and their infants. The abstracts have been written in the expectation that they will be read by people of varying sophistication regarding psychological and educational research. Technical jargon has been avoided as much as possible, and attempts have been made to explain some of the more uncommon terms. Some of the information will undoubtedly be of interest only to a relatively specialized audience, but it is hoped that after reading these abstracts most people will have obtained a general picture of what research, theory, and practice can tell us about infant care. If they do nothing else, these abstracts should provide the reader with an indication of the complexity of the issues involved and the impression that the final answers to most questions are not yet in.

Each abstract has been written to reflect as objectively and accurately as possible the findings and views described in the original article. This author is solely responsible for any errors made in the interpretation and summary of that work. Her comments and opinions about the materials, when they occur, are denoted by an asterisk and contained in a separate paragraph at the end of the abstract.

The process of reviewing the literature and summarizing materials related to the topics included here will be continued, and periodic up-dates of the abstracts will be published. The Consortium on Early Childbearing and Childrearing would therefore very much appreciate receiving copies of relevant materials, including work not located in this first survey as well as work that has been written up more recently.

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I INFANT DEVELOPMENT

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Ambrose, A.

Stimulation in early infancy. London: Academic Press, 1969.

This book includes the research papers and discussions of a multidisciplinary study group which met in London in November, 1967. The papers are not directly related to early child care, but much of the research and theory described has provided a basis for the development of interest in the importance of early child care.

Included in the section on "Early stimulation: Effects and mechanisms" are papers by S. Levine (Infantile stimulation: A perspective), V. H. Denenberg (Experimental programming of life histories in the rat), S. Levine (An endocrine theory of early stimulation), and B. E. Ginsburg (Genotypic variables affecting responses to postnatal stimulation), and general discussions on "Early stimulation effects, learning theory and early social isolation effects" and "Applying the infantile stimulation model to research on human infants".

The section on "Mother-infant interaction: Effects and biological functions" includes papers by P. P. G. Bateson (Imprinting and the development of preferences), M. D. S. Ainsworth & S. M. Bell (Some contemporary patterns of mother-infant interaction in the feeding situation), and M. David & G. Appell (Mother-child interaction and its impact on the child), as well as a general discussion of the biological functions of infant-mother attachment behavior.

The section on "Early stimulation and cognitive development" includes chapters by J. S. Bruner (Processes of growth in infancy), H. Papousek & P. Bernstein (The functions of conditioning stimulation in human neonates and infants), and J. Kagan (Some response measures that show relations between social class and the course of cognitive development in infancy). Also included are a general discussion of phenotypic and genotypic variation, early stimulation and cognitive development, and the concluding remarks of the chairman, D. A. Hamburg (A combined biological and psychosocial approach to the study of behavioural development).

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Bowes, W. A., Brackbill, Y., Conway, E., & Steinschneider, A.
Obstetrical medication & infant outcome: A review of the literature. Monographs of the Society for Research in Child Development, 1970, 35 (4, Whole No. 137).

It is noted that no professional specialist is the child's advocate during the nine months of fetal life, but the need for such an advocate may have become crucial because of the increase in the use of drugs by the mother during this period; some women apparently take ten or more different drugs during their pregnancies, and few are taking none at the time they realize they are pregnant.

The first chapter of this monograph provides an extensive review of the obstetrical literature having to do with medications given during pregnancy. The dependent variables in such studies tend to be physiological rather than behavioral measures, and such investigations do not typically follow the infant beyond the immediate postnatal period.

In the second chapter, an empirical investigation of analgesics and anesthetics given to 23 mothers is reported. The study was focused largely on the behavioral effects for the infant of labor and delivery medication: how pronounced were such effects and how long did they continue to affect the child's psychological health? Briefly, some differences were still noted at four weeks of age. No differences among groups could be attributed to maternal parity, maternal age (median age of the mothers, all white, was 23 years), length of labor, parental socio-economic level, parental educational level, time between administration of analgesic and delivery, or use of forceps during delivery.

The third chapter provides a summary of the issues involved, and notes the magnitude of the problem.

An extensive bibliography is provided, as well as an appendix consisting of a chart listing drugs (by name and category), their effect on the fetus or newborn, and the references for such findings.

Brockman, L. M., & Ricciuti, H. N.
Severe protein - calorie malnutrition and cognitive development in infancy and early childhood. Developmental Psychology, 1971, 4, 312-319.

This study was conducted to determine the effect of severe malnutrition in infancy on later categorization performance, the extent to which such effects are reversible through improved nutrition, and whether the level of categorization performance is related to other variables, including age.

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The subjects were 20 children (E group) aged 11.8 to 43.5 months who, when admitted for nutritional treatment (in Lima, Peru) had a body weight of less than 50% of their expected weight for age, and 19 matched controls (C_1) selected from day care centers in the Lima slums. A second control group (C_2) of 7 children, from the same day care centers, were particularly short (as were the experimentals) for either genetic or early malnutrition reasons.

Categorization behavior was measured using 10 sorting tasks each consisting of 8 objects. For each task, the subject received a Serial Ordering score and a Similar Object Grouping score. The C_1 group scored twice as high as the experimental (E) group. There were no sex differences. All subjects scored higher on Serial Ordering than on Similar Object Grouping. The C_2 group (between E and C_1 in terms of body length and head circumference) scored between the E and C_1 groups on the sorting tasks. After 12 weeks of nutritional treatment the sorting scores of the experimental group showed no improvement. The experimental subjects' test performance correlated significantly and negatively with all body measure percentages at admission and first testing (time not given), and medical ratings of nutritional recovery. After 12 weeks of treatment only change in head circumference percentage and total length of time in nutritional treatment remained significantly related to test performance.

The performance of the C_1 subjects was comparable to that of normal North American children. The categorization behavior of the E subjects was from 6 to 8 months retarded, indicating a lower level of cognitive development. The lack of improvement in their scores after 12 weeks of continued nutritional treatment (and increased familiarity with the tasks) tends to suggest relatively permanent cognitive retardation. Complete retest data for the C_1 subjects would be needed to infer irreversibility (two C_1 subjects improved their scores after 14 weeks by 34% and 40% but one dropped by 60%). It is not likely that group differences were due to level of task involvement (fatigue effects were not evident, time spent playing was comparable, and the objects were handled as frequently by E and C groups). The poorer performance and the reduced head circumference (which was related to sorting scores) of the malnourished children provide an indication of the severity of nutritional deprivation (perhaps to the extent of affecting actual cellular growth of the brain).

The authors conclude that while the children did evidence a reduced level of categorization behavior which persisted after three months of additional nutritional rehabilitation, the data are insufficient to infer permanent retarding effects of severe malnutrition on cognitive development.

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Freedman, D. G., Boverman, H., & Freedman, N.

Effects of kinesthetic stimulation on weight-gain and on smiling in premature infants. Paper presented at the meeting of the American Orthopsychiatric Association, San Francisco, April 1966.

This study was designed to assess the role of lack of stimulation, particularly kinesthetic stimulation, in the development of premature infants. Research with rats has led to the finding of a critical period extending to 16 days of age bar ; on the development of the adrenal-cortical stress mechanism. Results with mice varied with length of stimulation, strain, and sex, with reversed results common. However, exactly how kinesthetic stimulation relates to higher levels of circulating cortico-steriods is unclear.

Infants weighing 900 to 1700 gms. were rocked 12 times per minute, for 30 minutes twice a day, beginning 7 to 10 days after an upward trend in weight gain was established. Controls were either co-twins or singletons matched for race, parental age, birth order, birth weight, days of re-establishment of birth weight, formula, five minute Apgar rating (of viability), and length of labor. However, weight-gain curves were difficult to match; each infant had a unique chart. The weight curves of 17 pairs of same sexed twins showed amazing intra-pair correspondence. Six pairs of monochorionic identicals (having one distinct chorion; the outermost envelope of the growing zygote, or fertilized ovum) showed parallel curves. Three pairs of dichorionic identicals (having two distinct chorions), and five pairs of fraternal twins had weight curves which were nearly parallel, with some deviation but much less than in matched singletons. For five identical pairs, only one twin had been rocked. For every pair, the rocked twin gained at a greater rate per day during rocking but not before (average difference of 151.8 gms. at discharge compared with untreated twins' average difference of 65.0 gms.). Effects of rocking, however, appear to be temporary. Infants with a tendency to smile, smiled somewhat more when on the rocker. Judging from facial musculature and general body tonus, rocking generally maintained states of relaxation.

It should be noted that the stimulation in this study did not begin shortly after birth, but somewhat later, in no case earlier than 7 days.

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Horowitz, F. D.
Infant learning and development: Retrospect and prospect. Merrill-Palmer Quarterly, 1968, 14, 101-120.

The author provides a quick review of research on infant learning, particularly studies conducted during the ten year period between 1956 and 1966. The listing of results makes it clear that the young human infant is a learning organism. During the same time period, considerable research effort was directed toward delineating the characteristics of the human infant as well as his capabilities. A selected listing of studies conducted from 1958 to 1966 which describe infant characteristics is provided. This list indicates that the infant is a complex, fascinating and revealing organism.

The author discusses infant research in the context of learning theory, and the relationship between learning and development. The demonstration that the organism can do something or exhibits certain capabilities does not necessarily identify the process responsible for the result. Thus, the studies in the second listing, those concerned with the delineation of infant characteristics, describe the infant but do not tell us how he got that way. The author objects to the use of the impressive characteristics of the human infant to support the notion that the course of human development is almost totally pre-programmed and the infant is set to respond to certain predetermined stimulus conditions. She also objects to the argument that a conditioning model is inappropriate to explain development because the conditioning of infants has been done with so much apparatus that it could not possibly explain a real world phenomenon, and/or because development is so rapid there is not enough time for conditioning to occur. She suggests that so little is known about the speed of learning, and the way individual differences interact with environmental situations, that the only reasonable conclusion is that at the present time the answer (the explanation for the process through which development takes place) is not known and must await more definitive research. It is not simply a question of being for or against a learning model.

* The point that a description of infant characteristics tells us nothing about how much of the process of behavioral acquisition has been worked out, and how it will in the future be worked out, is well-taken. The author seems, however, to be arguing more for leaving open the possibility that a conditioning model is appropriate to explain development, than for a search for alternate models.

Kaye, K.
Learning by imitation in infants and young children. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

Most theories of learning suggest that a response must be followed by contingent feedback in order for learning, or a change in response probability, to occur. However, in learning by imitation, the subject fails to solve a problem, then he imitates a model

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and no other type of learning intervenes, and afterwards he solves the problem or correctly performs the task. Neither the chance differentiation of responses nor the selection by contingent reinforcement occurs.

The author has found that a pattern of phoneme repetition such as "ba-ba-ba-ba" can be elicited from 7 to 10 month old infants simply by having a model repeat the pattern. This has been done successfully with a videotaped model, (although less well than with a live model) where the possibility of contingent reinforcement has been eliminated. The baseline probability that a 10-month-old will say "ba-ba-ba-ba" within a given 20 minute period is close to zero.

In another study, six month old infants were taught by their mothers to solve a detour problem (a toy was presented behind a transparent barrier and the child had to reach around to retrieve it). This task is too difficult for six month olds to solve on their own, but their mothers were able to train them to solve it. Some used a shoving technique (pulling the child's hand around the barrier) but this did not work because the infants strongly resisted it (this may be because it would not produce reafferent feedback; that is, active learning rather than passive learning may be required). Shaping, or building up a detour reach by degrees over a series of trials, was employed by some mothers who were college graduates (most had taken a course in psychology). This worked at least once during training but on a post-test the infants showed no stability or generality of learning. Showing (demonstrating the detour reach over and over again) was the strategy used by the largest group of mothers; it was often successful within 10 or 15 trials and often led to transfer of the new skill to the infant's opposite hand, when the barrier was moved so as to block the hand used during training. In a subsequent study, the author tried the showing technique, in a formalized manner, with another group of six month olds. Three of 10 subjects wouldn't stay in his lap so couldn't be studied. The other seven (all of whom failed the pretest) all learned to retrieve the object and demonstrated that they could do so reliably. Two were crying and so were not tested for transfer but the remaining five all showed transfer. The question of exactly what is acquired in such imitation learning is still at issue.

In another set of experiments, four year olds were taught a five-key typing sequence. The child's attempts to imitate were not random but showed systematic imitation, indicating that accomodation was taking place during the imperfect trials (that is, each trial was a variation in the direction of the model).

The learning by imitation paradigm is suggested as a potentially fruitful course of investigation. It should demonstrate more about the process of imitation and tell a great deal about the nature of information processing. For example, 15 to 18 month olds could learn to reach around a transparent screen more easily than around an opaque screen, apparently because they used the visual information, whereas infants between six and nine months of age found the transparent screen more difficult than the opaque. Finally, this paradigm may be suggestive for a theory of skill itself, and for the development of a wide variety of skills in which the role of imitation has long been neglected (e.g. language).

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Schaffer, H. R., Greenwood, A., & Parry, M. H.
The onset of wariness. Child Development, 1972, 43, 165-175.

This article describes a longitudinal investigation of the relationship between perceptual discrimination (in this case, visual fixation of an object) and selective approach-avoidance behavior (in this case, latency to manipulation of the object).

The study was conducted in Britain with 11 male and 9 female infants from middle class families. Each infant was tested in his home seven times at four-week intervals, beginning at six months of age. One "nonsense" object was presented on Trial 1, and again at 30-second intervals for six additional trials; this constituted the familiarization test. A second "nonsense" object, similar in shape to the first but differing in color and pattern, was presented on Trial 8; this was the incongruity test. On Trial 9, the first object was presented again. Two responses were recorded: the length of the first visual fixation on each trial, and the length of time elapsed on each trial before the subject touched and manipulated the object.

The visual fixation data over the first seven trials indicated that familiarization led to response decrement (shorter looking times) at every age level. Particularly on the first trial, the length of fixation time decreased from the six to twelve month age levels. Marked response recovery (increase in fixation time to the new object) was exhibited on Trial 8 at all age levels, and there was a general tendency for the amount of recovery to increase with age. The largest single increase occurred between eight and nine months, indicating that at that age, awareness of incongruity becomes accentuated. From nine months of age onward, the incongruous stimulus (Trial 8) elicited significantly more visual responsiveness than the originally unfamiliar stimulus (Trial 1). On Trial 9, responses at all age levels indicated little, if any effect of the intervening incongruous stimulus.

The manipulative latency data over the first seven trials indicated that differential responsiveness according to degree of familiarity occurred only after the age of eight months; previously the infants were as ready to make contact on the first appearance of an unfamiliar stimulus as on its seventh appearance. The age effect is primarily a result of the longer latencies to manipulation exhibited after eight months on the first trial. Also, up to the age of eight months the incongruous stimulus (Trial 8) was approached with the same readiness as the familiar stimulus. At nine months of age and later, increase in latency from Trial 7 to Trial 8 occurred, although the increase was not as great as the visual fixation increase on the same trial.

The results point to an age dependent relationship between visual and manipulative responses to stimuli varying along a familiarity-unfamiliarity continuum. At six months, discriminative visual behavior was present, but it was not until later that selective manipulation appeared, suggesting that the manipulative response system had also come under the control of stored experience. Since the phenomenon was essentially one of replacement of immediate approach movements by a period of hesitation, the authors choose to refer to it as the beginning of "wariness". It did not develop gradually but appeared full-blown at nine months, having been completely absent at eight months. Individual results also indicated a relatively sudden onset. Visual responsiveness to the incongruous stimulus increased at the same time, that is, between 8 and 9 months of age.

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The authors suggest that the developing influence of stored experience on ongoing behavior underlies the changes found to take place between eight and nine months. Two separate processes are seen to be responsible for selective approach-avoidance behavior: a perceptual learning process and a response selection process. The authors point out that although the onset of wariness has generally been discussed in relation to fear of strangers, fear responses are by no means the inevitable outcome of wariness. Wariness refers to a period of immobility during which a stimulus is assessed in relation to stored experience and a response is selected. It is the development of the capacity for "non-approach" that is important, not the onset of fear. The direction the ensuing behavior takes (toward or away from the stimulus) is a quite separate problem.

Simner, M. L.

Newborn's response to the cry of another infant. Developmental Psychology, 1971, 5, 136-150.

A series of experiments was conducted to determine the extent to which reflexive crying occurs in newborns and to define the parameters controlling such crying.

In the first study, 25 newborn infants were exposed to a newborn cry (the tape-recorded spontaneous cry of a five day old female infant), 25 were exposed to white noise (to control for nonvocal cry properties such as intensity and sudden onset), and 25 were silent controls (not exposed to any auditory stimulus). The findings indicated that the vocal properties of an infant's cry contain stimulus elements that are effective in promoting crying in other newborns. Moreover, nonvocal properties of the cry such as loudness do not contribute directly to this behavior. However, an indirect contribution of these nonvocal properties is strongly suggested through their influence on the infant's autonomic arousal level (by raising it). Seasonal change in the newborn's response to the vocal properties of cries was also found, with an increased probability of reflexive crying during the colder months. Also, female infants were somewhat more responsive than male infants to the cry of another infant.

In the second study, 70 infants were divided into four groups. The first group was presented with a tape recording of a spontaneous cry from a five and one-half month female infant, the second group heard a computer-synthesized cry designed to reflect certain major parameters of the newborn cry, and the third group received the newborn cry and the fourth the silent control condition, as in the first study. The results indicated an increased likelihood of reflexive crying as the auditory signal approaches that of the newborn's own cry (silent control least likely, followed by synthetic cry and five and one-half month cry which were equally likely, with the newborn cry most likely).

In the third study, 20 infants each heard both the newborn cry used in the first two studies and a recording of their own cry (with order counterbalanced). While the findings were not statistically reliable, they indicated a continuation of the trend found in Study 2.

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Mean duration of crying to own cry was 65.3 seconds compared with 40.9 seconds for the newborn cry. Thus, the three studies indicated that for the five auditory stimuli employed (white noise, synthetic cry, five and one-half month cry, newborn cry, own cry), reflexive crying becomes more probable as the stimulus characteristics approach the infant's own cry.

A fourth study was conducted with 30 infants to determine whether reflexive crying to a newborn cry is stable over a 24 hour period in the first few days of life. Cry duration scores were not stable in general, but females were significantly more stable than males. These results provide no support for a general dispositional variable, but suggest that sex-related dispositional factors may contribute to reflexive crying.

Data from the second and third studies are congruent with suggestions raised by Piaget and Morley that auditory self-stimulative feedback from the infant's own cry may have a role in generating this behavior. Data from the fourth study question the likelihood of a direct relationship between reflexive crying and circular babbling or vocal imitation which generally appears around four months of age (but longitudinal data are clearly needed).

The results do raise the question as to whether feedback from the infant's own vocal output may provide a basis for speech cue discrimination during the first six months of life. The mechanism underlying the relationship between own cry and reflexive crying remains unclear. Two possibilities are suggested. Reflexive crying may be an infant's attempt to match his own vocal behavior with an auditory signal resembling a previously acquired acoustic template of that behavior. Or, systemic factors responsible for the specific vocal components of an infant's cry may also promote differential auditory sensitivity to these components (a congenital auditory template similar to a congenital vocal template).

* One problem with these studies is the high attrition rate for subjects. From the first study, 20 of 95 subjects were eliminated for various reasons, including excessive crying. Similarly, 13 of 83 in the second, 3 of 23 in the third and 4 of 34 in the fourth studies were eliminated. The samples may thus have been biased in particular ways (see Lewis & Johnson, 1971).

Solkoff, N., Yaffe, S., Weintraub, D., & Blase, B.
Effects of handling on the subsequent development of premature infants. Developmental Psychology, 1969, 1, 765-768.

This study was designed to consider the possible role of early sensory deprivation in producing some of the impairments associated with low birth weight. Specifically, the immediate and subsequent effects of one form of stimulation, handling, on the behavioral and physical development of premature infants was assessed.

The subjects were four boys and one girl in each of an experimental (mean birth weight 3.00 pounds) and a control (mean birth weight 3.02 pounds) group. Assignment to groups was random. The control group was treated in the usual hospital manner for premature infants

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(feeding at three-hour intervals and diaper changing constituted the only handling for ten days). Experimental infants were additionally stimulated by having their neck, back and arms gently rubbed five minutes per hour, 24 hours per day, for ten days. Responses recorded were activity (on a stabilimeter in the isolette), weight, temperature, startle responses (to noise), crying (intensity and vigor), frequency of urination and defecction (hourly checks), and physical development assessed later at between seven and eight months.

The results (not subjected to statistical analysis because of the small sample) indicated that handled infants were more active and regained their initial birth weight faster (10.8 days versus 15.4 days for the control group). By six weeks this initial advantage was lost. There was some evidence that experimental infants became temporally conditioned (they tended to become more active prior to each subsequent stimulation period).

The Bayley test scores (obtained between seven and eight months), pediatricians' examination and home visit indicated that handled infants had fared better than the controls. All were described as active and healthy, while three of the five controls were rated as more than two standard deviations below the growth mean for their age and one was at the lower limit of normal. Two of these four were also rated as suspicious for cerebral palsy. Only one of the handled babies showed poor gross and fine motor development. Four of the non-handled infants were below the mean for their age in motor development. Assessment of the home environment indicated that in general the homes of the handled infants appeared to offer more stimulation (more toys, greater mother-infant interaction, etc.). The possibility is raised that handling may have affected the infant's behavior, thereby resulting in a more positive maternal attitude and therefore increased stimulation in the home. With such a small sample, it is also possible that such home differences were due to chance, and did lead to developmental differences.

Wachs, T. D., & Cucinotta, P.

The effects of enriched neonatal experiences upon later cognitive functioning. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

In animal studies, effects due to increased early experience have been demonstrated on both short term (immediate) and long term bases, but in humans, only immediate positive effects have been found, and these disappear at later assessments. The authors address the problem of the stability of early experience effects in humans.

Subjects were nineteen male and six female infants. Thirteen (experimental) infants had been stimulated by being given 140 minutes of supplementary experience (extra handling, visual and auditory stimulation, crib rocking) during the first three days of life, and a subsequent 30 day home stimulation program administered by their mother (including stimulus feedback contingent upon the infant's behavior). A control group of 12 infants had been exposed to the normal hospital routine. At four days, the stimulated infants showed faster learning (conditioned head-turning) and at 30 days, they showed greater visual attentiveness.

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At ten months of age, all subjects were given the Infant Psychological Development Scale (IPDS), a Piaget-based scale which measures functioning in eight areas (for example, object permanence, vocal imitation, foresight). No significant differences between the groups were found on any of the subscales, nor were there any trends.

Two possible explanations of the tenuous effects of early experience in humans are discussed. Human studies differ from those done with lower organisms in that relative to the life span of the organism, the latter receive greater exposure to intervention. This would suggest a critical amount hypothesis; in human studies, the critical amount of stimulation necessary for permanence of effects may not be reached. Another possible explanation is the reinstatement hypothesis developed by Campbell: lack of retention is postulated to be due to the unstable memory trace of young organisms. Periodic partial repetition of the experience may be necessary to retain the effects of the experience through time. Certainly most early experience studies with humans have been lacking in reinstatement. The only study which did indicate long term effects, the Solkoff, Yaffe, Weintraub, & Blase (1969) study of premature infants handled early in life, did include the probability of some form of reinstatement, since the homes of the handled infants were found to be higher in stimulation potential than the homes of the non-handled infants. The reinstatement studies with animals, however, have included a specific learning situation rather than general stimulation which may or may not be assimilated, a situation not particularly useful for humans. The authors have therefore commenced a study with rats in an attempt to determine whether reinstatement effects are found without specific learning, and preliminary indications are that such is the case. It is suggested that for humans, it is likely that the most powerful reinstatements will be progressive ones including both the original experience and some optimal new one, as formulated in Hunt's notion of the "match".

* These results point to the importance of brush-up experiences for children exposed to intervention. Such follow-up experiences are being incorporated into some programs.

Willerman, L., Broman, S. H., & Fiedler, M.
Infant development, preschool IQ, and social class. Child Development, 1970, 41, 69-77.

There is some evidence that the long term effects of a particular adverse experience during infancy are strongly dependent upon socio-economic status (SES); the risk to the abnormal infant may be disproportionately greater when the child comes from a less stimulating cultural milieu. If there is such a differential effect of infant developmental status on IQ as a function of SES, it is important to treat SES systematically when predicting IQ from infant status. In this study, infant scores were related to IQ at four years for a large sample of children of widely varying SES and infant development.

The subjects were 3037 white children born at Boston Lying-in Hospital. At eight months of age, the Collaborative Research Form of the Bayley Scales of Mental and Motor Development was administered; scores were divided into quartiles with Q_4 for the mental

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scale including scores of 78 or less, Q_3 = 79-81, Q_2 = 82-84, and Q_1 = 85-106. For the motor scale, Q_4 included scores of 29 or less, Q_3 = 30-33, Q_2 = 34-36, and Q_1 = 37-43. At four years of age, the abbreviated version of the Stanford-Binet (S-B) was given. A socio-economic index (SEI) was devised and subjects were categorized as low ($\underline{N}$ = 403), middle (1750), or high (884). (The index was multidimensional, based on the average of a set of rankings of head of household's education and occupation and on family income).

In this sample, females scored significantly higher at eight months than males on both Bayley Scales and at four years on the S-B. However, essentially similar patterns of results for the sexes were found. Mean Bayley mental test scores did not vary with SEI. When Bayley mental scores at eight months were related to S-B scores at four years, the infants from the lowest Bayley quartile within each SEI level were significantly and consistently lower in IQ at four years. In the low SEI level, the four year olds who had been most advanced as infants (Q_1) did not even obtain mean IQs as high as four year olds in the high SEI level who had been most retarded as infants (Q_4).

In other words, the effects of SEI were very strong; there was no overlap in Binet IQ scores at four years.

Mean Bayley motor scores were slightly but significantly related to SEI, with the low SEI group receiving the lowest mean score and the high SEI group the highest. Within each SEI level, infants in the lowest motor quartile at eight months obtained the lowest mean IQs at four years, and the greatest differences in mean four year IQ between the eight month quartiles were found among the lowest SEI subjects. This suggests greater vulnerability of poorly developed infants to the adverse effects of the environment. When infants scoring in the lowest quartile on both the mental and motor Bayley scales were examined, it was found that although they comprised only 11.6% of the subjects, they constituted 58% of the four year olds scoring below 80 on the S-B. Among advanced infants the frequency of occurrence of IQ below 80 at four years was unrelated to SEI. But retarded infants were seven times more likely to score below 80 at four years if they came from the lowest SEI than if they came from the highest group.

The major finding is that retarded infant development predicts disproportionately poor intellectual performance for lower class children. Infant developmental status interacts with SES in the incidence of low IQ at four years of age. The authors point out that SEI has many weaknesses and does not account for what influences accelerated infant development. Among high SES groups the results suggest that the infant test is a poor predictor of later intellectual status. The results also suggest that poverty will amplify the IQ deficit in poorly developed infants. And infants born to poor families have a higher incidence of poor developmental status as well as mortality.

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II THE INFANT-ADULT RELATIONSHIP

Ainsworth, M. D. S.

Object relations, dependency, and attachment: A theoretical review of the infant-mother relationship. Child Development, 1969, 40, 969-1025.

The purpose of this paper is to review the theory that has accumulated in regard to each of three terms used to characterize the infant's relationship with his mother: object relations, dependency, and attachment. Although the terms overlap somewhat in connotation, they are not synonymous. The concept of object relations stems from psychoanalytic theory: the "object" of an instinct is the agent through which the instinctual aim is achieved, and the agent is usually another person. It is generally agreed that an infant's first object is his mother. The term dependency is especially linked to social learning theories which follow the lead of psychoanalytic theories in conceiving the origin of interpersonal relations to lie in the infant's dependence on his mother. Defined first as a learned drive, dependency has come more recently to be viewed by learning theorists as a class of behaviors, learned in the context of the infant's dependency relationship with his mother, and reinforced in the course of her care of him and interaction with him. Dependency is viewed as generalizing from the first specific relationship to other subsequent interpersonal relations and is seen to be commonly nonspecific in its implications. While dependence implies immaturity, and is the antonym of independence, the paradox is that relationships to specific persons, whatever they are termed, develop concurrently with the competencies on which independence is based. Consequently, some social learning theorists have disclaimed a bipolar dimension of dependence-independence. The term attachment stems from Bowlby's ethological approach to the explanation of a child's tie to his mother. Attachment refers to an affectional tie that one person (or animal) forms to another specific individual; it is discriminating and specific. Attachments, like object relations, occur at all ages and do not necessarily imply immaturity or helplessness, although the first tie is more likely to be formed to the mother. Attachments tend to endure, although attachment behaviors will vary from time to time.

The author carefully reviews and outlines the development of each of the three theories concerning the relationship of an infant to its mother. Criticisms of each are also offered. In particular, the author is "critical of views which hold that interpersonal relations in general and the infant-mother tie in particular are secondary to orality or to primary drive gratification" (p. 980). On the other hand, the psychoanalytic point of view is seen as having a great strength in its emphasis on the interlocking between cognitive and social development. The view of dependency as an acquired drive, the earlier social learning theory viewpoint, is criticized for its implication that the infant is passive and unresponsive when his biological needs have been fulfilled. The later view of dependency is merely as a convenient label for certain kinds of learned behavior; the shift from the earlier view parallels the gradual shift of emphasis in learning theory from the Hullian

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model to the Skinnerian operant conditioning model. While those who view dependency as behavior have rid themselves of the misleading ramifications of the concept of acquired drive and of a superstructure based on homeostatic drives or orality, according to the author, the approach goes to an equally misleading extreme in minimizing (almost ignoring), the organismic determinants of behavior. The ethological approach to attachment, on the other hand, postulates an organism that is structured from the very outset, and all behavior and development are seen as coming about through the interaction of that structured organism with those aspects of the environment which its structure is sensitive to receive as "input". This is the theory within which the author works. She outlines the position, as put forth by Bowlby, in considerable detail. The keynote is that attachment behavior has biological underpinnings which can be comprehended only within an evolutionary context. According to this theory, attachment behavior develops through four main phases: Phase 1, orientation, and signals without discrimination of figure; Phase 2, orientation and signals directed toward one or more discriminated figures; Phase 3, maintenance of proximity to a discriminated figure by means of locomotion as well as by signals; Phase 4, formation of a reciprocal relationship.

The author feels that some of the differences among those holding the different views of the development of the mother-infant relationship are misunderstandings regarding terms. In particular, she discusses the meaning of the terms hereditarily determined, extinction, reinforcement, feedback, and attachment, as opposed to attachment behavior. She leans toward a definition which equates love and attachment; this, of course, implies that strength or intensity of attachment cannot be assessed.

* This article provides an excellent summary and discussion of the theoretical issues involved in the study of a child's tie to his mother.

Ainsworth, M. D. S., & Bell, S. M.
Some contemporary patterns of mother-infant interaction in the feeding situation. In J. A. Ambrose (Ed.), Stimulation in Early Infancy. London: Academic Press, 1969.

The largest proportion of interaction between an infant and his mother in the first three months of his life has reference to feeding. This study involved an examination, based on home observation during the first three months of life, of interaction related to feeding for the white middle-class mother-infant pairs. Four of the babies were breast fed for at least three months, the rest were bottle fed.

The four features of feeding interaction considered were the timing of feedings, the way in which the amount of food ingested and the end of the feeding were determined, the mother's handling of the baby's preference for kinds of food, and the pacing of the rate of the baby's intake. Nine patterns of feeding interaction were identified, four designated as feeding on demand, four according to schedule, and one arbitrary. They were intuitively ordered according to the extent to which the baby was permitted to determine timing, amount, order of solid foods and pacing. 1) demand: thoroughgoing and consistent (one baby);

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2) schedule: flexible (six); 3) demand: overfeeding to gratify the baby (two); 4) schedule: overfeeding to gratify the baby (two); 5) schedule: too much staving off (three); 6) pseudo-demand: mother impatient (four); 7) pseudo-demand: overfeeding to make the baby sleep long (two); 8) schedule: rigid by the clock (one); 9) arbitrary feeding (five - mothers all with some disturbed personality characteristics).

Three sets of correlates of feeding patterns were examined: the baby's amount and pattern of crying, the mother's attitude and infant-care practices, and the baby's behavior at one year in a strange, experimental situation. The first two patterns of feeding interaction were found to be associated with the least crying, both in relation to feeding and overall crying, and in terms of both frequency and duration of crying. Overall, the first four feeding patterns, in which mothers were relatively sensitive and responsive to the babies' signals and communications, were associated with relatively little crying, while the other five patterns, in which the mothers were relatively insensitive or unresponsive, were associated with a relatively large amount of crying. Each mother was also rated by two or more judges on 22 nine-point scales devised to assess different aspects of maternal care in the first three months. Six are described in the article in relation to the nine feeding interaction patterns found in the sample. The six are the mother's perception of the baby, her delight in the baby, her acceptance of him, the appropriateness of her interaction with him, the amount of physical contact with him, and the effectiveness of her responses to his crying. The highest ratings are associated with feeding patterns 1-4, in which sensitivity to the baby's signals and a desire to gratify him are prominent. The lower ratings are associated with the other patterns, with 8 and 9 being lowest. At the end of the first year, the babies were introduced to a standardized strange situation. Of interest were the baby's exploratory behavior and whether he could use his mother as a secure base, his responses to two brief separations (once left with a stranger and once alone) and his responses to his mother when reunited with her. Babies were classified into three groups according to their responses. It was found that babies whose mothers had been especially sensitive to them in the early feeding situation (patterns 1-4) manifested attachment through efforts to regain contact after a brief separation and maintaining contact by clinging. Babies whose mothers had been relatively insensitive tended either to lack interest in regaining and maintaining contact or to intermingle contact - seeking with rejection of her.

The authors conclude that in general, those mothers who could see things from the baby's point of view tended to adopt infant-care approaches which led to harmonious interaction not only in feeding but generally. They also note that it is undoubtedly easier to interact harmoniously with a baby who is relatively easy to understand and predict and who responds with pleasure, so that the role of constitutional differences is confounding. They also comment that feeding practices having as objectives both the gratification of the baby and the regulation of his rhythms seem to succeed whether labeled "demand" or "schedule". These also allow the baby to be an active participant, which may contribute to building confidence in his ability to influence what goes on around him and thus lead to a sense of competence.

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Ainsworth, M. D. S., & Bell, S. M.

Attachment, exploration, and separation: Illustrated by the behavior of one-year-olds in a strange situation. Child Development, 1970, 41, 49-67.

The concepts of attachment and attachment behavior were considered from an ethological evolutionary viewpoint. Attachment behaviors are the behaviors which promote proximity or contact. Attachment is seen as an organization of behavioral systems which has an internal, or structural portion that endures through periods when none of the component attachment behaviors have been activated. A laboratory situation was used to observe the extent to which an infant could use his mother as a secure base from which to explore the environment, and to observe the extent to which attachment behavior might gain ascendancy over exploratory behavior under conditions of alarm introduced by the entrance of a stranger, and under conditions of separation from and reunion with the mother.

The subjects were 56 white, middle-class infants and their mothers, tested in the strange situation at 49 or 51 weeks of age. The laboratory situation was designed to be no more disturbing than those an infant was likely to encounter in his ordinary life experience. It consisted of a series of eight episodes; in two of the episodes the mother left the room and the infant remained with the stranger. Behaviors observed were proximity- and contact-seeking, contact-maintaining, proximity- and interaction-avoiding, contact- and interaction-resisting, and search behavior.

Exploratory behavior declined sharply from the time the baby was alone with his mother to the period when the stranger was also present, and remained depressed while the mother was out of the room. When she returned, visual and manipulatory exploration recovered (with her encouragement), then declined again when she left the second time, leaving him alone, and declined to the lowest point when the stranger returned (but not the mother). The incidence of crying did not seem related just to the strange situation; it rose with the mother's first departure, declined with her return, and rose again when she left again (and the infant was alone). However, it did not decrease when the stranger returned, indicating that it was the absence of the mother, rather than being alone, that was upsetting. All but four subjects reacted to being left alone by either crying (20%) or searching (37%) or both (32%). Efforts to regain contact, proximity, or interaction with the mother were greatly intensified by brief separation, and were displayed much less frequently and less strongly to the stranger than to the mother. Contact resisting behavior was displayed at some point by at least half of the sample, and seemed to represent classic ambivalence, wanting to be close and be held, but resisting contact.

These results are described as illustrating the complex interaction between attachment behavior, response to novel or familiar stimulus objects and situations, and responses to separation from the attachment object and to subsequent reunion. The presence of the mother seems to facilitate approach and exploration of the novel. The relationship of the results to studies with animals and clinical observations of children who have experienced

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long separations are discussed. The author urges that the concept of attachment and attachment behavior be given a broad enough perspective.

Some propositions are suggested to be essential to a comprehensive concept of attachment. 1. Attachment is not coincident with attachment behavior (so a short time sample may be misleading). 2. Attachment behavior is heightened in situations perceived as threatening. 3. When strongly activated, attachment behavior is incompatible with exploratory behavior. 4. Although attachment behavior may diminish or even disappear with prolonged absence from the attachment object, the attachment is not necessarily diminished; attachment behavior is likely to re-emerge in full or heightened strength upon reunion, with or without delay. 5. The incidence of ambivalent (contact-resisting) and probably defensive (proximity-avoiding) patterns of behavior in the reunion episodes of the strange situation are a reflection of the fact that attachment relations are qualitatively different from one attached pair to another. This makes it difficult to assess the strength of an attachment. With the present state of knowledge, the author argues instead for the exploration of qualitative differences and their correlates and antecedents.

Ainsworth, M. D. S. & Bell, S. M.
Mother-infant interaction and the development of competence. Unpublished manuscript, 1972.

This paper provides an integrated summary of the authors' research on mother-infant interaction. Most of the studies discussed have been separately abstracted in some detail, so only their major findings will be noted here.

Competence in infancy can be defined in absolute terms of cognitive and motor skills and abilities (by which definition infants are relatively incompetent); or in relation to the infant's age or stage level (which gives credit for preadapted behaviors but ignores the question of whether the environment allows him to use the behaviors); or in terms of the infant's effectiveness. This latter definition implies a competent mother-infant pair, since the mother plays the reciprocal role to the infant's preadapted functions (crying, sucking, etc.). According to this third definition, maternal responsiveness provides the conditions for a normally functioning infant to influence what happens to him by influencing the behavior of his mother; this undoubtedly aids the development of social competence.

Social competence is discussed in relation to crying, communication and maternal responsiveness (crying being the earliest and most effective way in which an infant can signal or communicate with his mother). The results of a longitudinal study of crying (Bell & Ainsworth, 1971) indicated that mothers were substantially more stable in their responsiveness to infant crying than were infants in their tendency to cry, and failed to confirm the common belief that to respond promptly to a baby's cry will strengthen his tendency to cry on subsequent occasions. Moreover, babies who cried little had a wider

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range of differential modes of communication. Maternal responsiveness to signals apparently supports the development of social competence, in the sense that it promotes the development of a variety of communicative behaviors that are easy to read and hence, more likely to successfully influence others.

Maternal behavior may also play an indirect role in the development of competence. It could facilitate the development of abilities directly pertinent to an infant's dealings with his physical environment, could provide managerial influence in terms of affecting the kinds of experience available to him (e.g. toys, freedom to move), and it could affect his confidence in both himself and his mother (trust), thereby fostering a sense of competence. Stayton, Hogan, & Ainsworth (1971) reported data on the relationship between maternal behavior and infant IQ which showed that mothers who are both sensitive to infant signals and permit their babies freedom to move about to explore the world on their own account tend to have babies who are relatively accelerated in psychomotor development, whereas mothers who do neither tend to have babies who are relatively retarded in development. Other studies have confirmed these findings, including a longitudinal study of 33 black children of low socio-economic status (SES). At both 8 and 11 months floor freedom and a harmonious infant-mother attachment relationship were found to be highly correlated with IQ; frequency of punishment was negatively and moderately correlated with development at 11 months. Amount of time that adults or other children spent playing with the baby was positively related to IQ toward the end of the first year. Parental education, however, was not related to IQ at either 8 or 11 months.

One significant outcome of infant-mother attachment seems to be that the infant can use his mother as a secure base from which to explore. Bowlby has contended that at least two systems seem to be in balance with each other: attachment behavior that promotes proximity and exploratory behavior that promotes acquisition of knowledge; an optimum balance appears to be a favorable condition for cognitive development, and thus the development of competence. Results obtained for the last quarter of the first year of life with the poor black infants noted above indicate that infants who had frequent harmonious transactions with their mother in the course of an observed play session, and whose mothers were generally responsive to their initiations of interaction (whether directly related to exploration or not) tended to explore more toys and, more importantly, to display more behavioral schemata (ways of relating to things, an indication of advancement in the course of play. Moreover, infants who typically experienced frequent and prolonged periods of play with their main caretaker explored more toys and displayed a greater number of schemata and a more advanced level of play. In another study (Bell, 1970), it was concluded that babies who had a harmonious interaction with mothers who were sensitive to their signals, and who had developed an attachment relationship of normal quality, tend to develop person permanence (the knowledge that although a person is out of sight, he still exists) in advance of inanimate-object permanence. Thus, the environmental circumstances affecting the quality of an infant's attachment to his mother apparently also effect an important aspect of cognitive development in the first two years of life. Finally, when middle-class (white) and lower SES (black) samples were compared, significant differences favoring the middle-class group in both person

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and object permanence were found at 11 (although not at 8) months. However, there were no group differences for those infants who had experienced a harmonious relationship with their mother and had a person permanence concept that was more advanced than their object permanence concept. On the other hand, lower SES infants who had had a disharmonious relationship with their mother were significantly inferior to middle-class infants who had experienced disharmony. These results suggest that a harmonious infant-mother relationship may be particularly important for lower SES groups, since it may be able to act as a buffer protecting the child from the detrimental effects of economic deprivation. It may be the single most important factor in alleviating socio-economic disadvantage.

Ainsworth, M. D. S., Bell, S. M., & Stayton, A. J.
Individual differences in the development of some attachment behaviors.
Merrill-Palmer Quarterly, 1972, 18, 123-144.

This study was conducted with 26 white middle-class mothers and their infants, 16 males and 10 females were observed in their homes for about four hours once every three weeks, from 3 to 54 weeks of age. The coded data concerned crying (in particular, the amount and the mother's response), the infant's responses to the mother's leaving or entering the room, and behavior related to physical contact (response to being picked up, to being put down, contact initiation and contact cessation). The authors were interested in looking at individual differences in these particular attachment behaviors.

Some decline in duration of crying was observed over the first year of life. Individual differences in time spent crying were very large (ranging from 21 minutes per waking hour to almost none, for the first quarter of the first year of life). There was a strong tendency for babies whose mothers ignored their crying or delayed in responding to their cries to cry more frequently and/or for longer periods in comparison with those whose mothers responded promptly. Also, stable interlocking mother-infant patterns seemed to have been established by the second quarter. The authors view this pattern in terms of three developmental processes. First, the infant develops the expectation that his mother will respond, then he develops the competence to control what happens to him (through her), and later he develops more varied modes of communication with her (other than crying). Physical contact emerged as the most consistently effective terminator of crying, but doing anything was quite effective. This indicates that it is of more importance to the baby that his cry be responded to, rather than the actual nature of the response.

The analysis of the infant responses to brief, everyday separations indicated two peak periods of crying in response to separation: at 33 and 45 weeks of age. The authors suggest that the first peak may reflect the acquisition of the ability to discriminate the mother, and the second, a consolidation of "true" attachment; or, the reason for the two peaks may be that in the interim the baby was more pleased with his new-found ability

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to crawl (after his mother) than concerned about her leaving. The observations also indicated that for about half of the occasions on which the mother returned the infant responded neither positively nor negatively.

Physical contact between mother and infant decreased from the first to fourth quarter of the first year from a mean of 21 to 5.8 minutes per waking hour. One very interesting finding was that babies who responded positively to being held tended not to cry when put down; those who responded negatively were much less likely to move off cheerfully to independent activity after being put down. There seemed to be a genuine inverse relationship between frequency of pick-up and the duration of holding. Mothers who held their babies relatively long in non-routine situations (and who also picked them up less frequently) tended to have babies who responded positively with active attachment behavior. Also, babies who in the fourth quarter cried when put down tended to be those who in the first quarter were picked up frequently but briefly.

From these results, the authors have inferred that a dimension of security-insecurity is necessary to characterize the quality of attachment. There are conspicuous individual differences in the way infants organize their attachment behavior, and therefore the quality of attachment differs. The results also indicate that no single behavioral criterion is adequate to judge an attachment relationship. Therefore, there is no way to assess the strength of attachment (since different attachment behaviors cannot be equated).

Ban, P. L., & Lewis, M.
Mothers and fathers, girls and boys: Attachment behavior in the one-year-old. Paper presented at the meeting of the Eastern Psychological Association, New York, April 1971.

Attachment behaviors directed toward both father and mother were examined in 10 male and 10 female one-year-olds. The authors note that attachment is being increasingly viewed as a primary social motive rather than simply a consequence of the mother as a source of nurture. Sex differences and social class differences in attachment have been examined, but typically only in relation to mothers, not fathers.

Each subject visited the laboratory twice, two weeks apart, once with his mother and once with his father (order was counterbalanced). The parent sat on a chair, and placed the child on the floor in a 12' x 12' room divided into squares and containing some toys. Proximity or closeness to parent, and touching, were proximal (close communication) behaviors observed, with looking and vocalization being distal (distant communication) behaviors.

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In general, almost twice as much touching and proximity seeking was directed toward mothers as toward fathers. Vocalizing was directed slightly more toward fathers; looking was not different for girls, but boys looked significantly more at their fathers. When correlations among behaviors directed to fathers, to mothers and to both were examined, boys' correlations were nearly all positive, indicating consistency in expression of attachment across parents, and that the same behaviors were used for both. Girls, however, showed a much less integrated pattern, tending to use behaviors singularly, and indicating that they tend to favor one parent over the other.

The results were discussed as indicating that attachment behavior toward fathers appears to be both qualitively and quantitatively different from that toward mothers. One possible explanation of this is the small amount of time fathers spent with their children. The fathers estimated (probably biased upwards) that they spent 15 to 20 minutes per day playing with their one-year-olds. In another study, it was found that fathers spent an average 37.7 seconds in interaction with their 2-week to 3-month old infants. One would therefore expect a weakened attachment motive; alternatively, fathers could evoke more looking behavior merely by virtue of being novel.

Barnett, C. R., Leiderman, P. H., Grobstein, R., & Klaus, M.
Neonatal separation: The maternal side of interactional deprivation, Pediatrics, 1970, 45, 197-205.

A pilot study was conducted to determine the feasibility of changing premature care procedures, in order to study the effects of interactional deprivation in the neonatal period on maternal attitudes and behavior. Three components of mother-infant interaction which are most affected by separation are described (timing and duration of contact, sensory modalities of interaction, caretaking nature of interaction). Over a two-year period 41 mothers were allowed first to handle and later to feed their infants while they were in incubators. It was found that admitting mothers to the nursery did not increase the danger of infection or appreciably disturb the routine functioning of the staff.

In the experimental group, 13 mothers were selected for observation and interviewing. A control group of 16 mothers who were not allowed in the nursery was followed in a similar fashion. Differences between the mothers appeared to center in three areas: commitment to the infant, self-confidence in the ability to mother, and stimulation and skill in caretaking. Although no positive statement can be made at this time, the authors raise the question of whether separation might also produce effects upon the infant to the extent that the mother who is deprived of contact during the postpartum period may be unable to develop an attachment at the time when she is most sensitized

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to be responsive, and therefore may subsequently provide less stimulation when she is permitted to care for the infant. A second observation is made concerning the fathers of the infants. When both mother and father were not permitted in the nursery, the equivalency of their roles vis-à-vis the infant appeared to carry over into the home life, with the father tending to be more involved with the care of the infant than the fathers whose wives were permitted to care for the infant in the nursery.

Beckwith, L.

Relationships between attributes of mothers and their infants' IQ scores. Child Development, 1971, 42, 1083-1097.

Relationships among maternal behaviors, infant behaviors, and individual differences in infant IQ scores were investigated for family-reared, white middle-class infants who had been adopted (this allowed for a more clear-cut differentiation between environmental and genetic contributions).

The subjects were 12 male and 12 female infant-mother pairs. All of the infants were the first and only child in the home where they had lived since being adopted at 5-10 days of age. At the first session ages ranged from 7.2 to 9.7 months, and at the second, from 8.5 to 11.3 months with a mean of 10.0 months. During each visit, the Cattell Infant Intelligence Scale and the Gesell Development Schedules of motor items were adminsitered. In addition, one hour was spent observing mother-infant interaction (recorded in 30-second time units). Immediately prior to the second session, the mother completed the Schaefer-Bell Parental Attitude Research Inventory (PARI).

In general, the mother's rank within the group in relation to such things as amount of speaking and general permissiveness remained relatively stable across the two sessions. The rank of the sum of the ranks was therefore used for analysis. This was also done for the infant scores (although the Cattell test-retest reliability coefficient was only .54).

Factor analysis of the PARI responses revealed three factors: the first (A) was entitled Assertive Maternal Control, the second (B) Impulse Suppression (of the child's sexual and aggressive impulses), and the third (C) Overpossessiveness. The correlations among the observations of maternal behavior and the PARI factor scorces were subjected to cluster analysis. The first cluster contained verbal and physical contact measures obtained by observation of the mother (correlations from .39 to .78); it was labeled Stimulation. The second cluster consisted of the three PARI factors plus the observational measure of Opportunities to Explore; it appeared to reflect a generalized restrictiveness. PARI factors A and B were significantly negatively related to the adoptive mother's socio-economic status (SES), although the range of SES in the sample was very narrow. Observational measures were unrelated to SES, with the exception that mothers with only high school education tended to treat boy infants particularly restrictively.

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Among the infant measures of social interest, only Social Approaches (reflecting the most assertive, active behavior and requiring only an adult's presence, not specific maternal behaviors) showed significant stability over time (test-retest $r = .68$). The Cattell and Gesell scores were not related, and Cattell scores were unrelated to social and emotional infant behaviors. However, social approaches to the mother and/or observer and ignoring of the mother by the infant were related to his gross motor skills. The SES of his adoptive mother was unrelated to an infant's Cattell or Gesell scores, but those scores were significantly correlated with the SES of his natural mother. The authors suggest that this may be due either to an environmental event of gestation due to better nutrition (such as postulated by Jensen), or may reflect a true genetic influence. This result, combined with the absence of a relationship between infant intelligence scores and adoptive mother's SES, suggests that the education of the mother may point more to her genetic contribution to her child than to her environmental influence in caring for him, as Honzik has suggested. On the other hand, SES may merely be too gross an index of maternal caretaking, as Caldwell and Richmond (1967) have argued.

Of four categories of maternal speech, only verbal discouragement was related to the infant scores; it correlated significantly with Gesell gross motor scores. This may reflect the influence of the infant's behavior on the mother—the better he can locomote, the more difficulty he can cause. Lower verbal discouragement did not necessarily reflect greater permissiveness; if the infant was confined, his mother did not need to express discouragement.

Cattell infant scores were found to be significantly related to the number of places the infant had visited and the number of people both in and out of the home who had played with him, as reported by his adoptive mother. Gesell gross motor scores were unrelated to these reports. The social experience measure (based on these reports) was inversely related to smiling; the more contact with strangers reported for the baby, the more sober they were when observed. Low maternal verbal and physical contact when combined with high maternal restrictiveness in the home was found to be related to significantly lower Cattell infant scores. This is particularly interesting since neither aspect of this composite pattern taken alone significantly influenced Cattell scores. Within the sample, boys and girls showed the same pattern of relationships with maternal behavior.

These results are interesting in that a combination of restricted exploration of the house and few contacts with the mother was significantly inversely related to infant intelligence, even within the very restricted SES range studied (all homes were clearly middle-class). The results do indicate that experience had to be curtailed in several areas before the influence was manifest in Cattell IQ scores.

Bell, R. Q.
Stimulus control of parent or caretaker behavior by offspring. Developmental Psychology, 1971, 4, 63-72.

The purpose of this paper is to emphasize the extent to which the child's own contribution to adult-child interactions has been ignored, and to argue that there is no reason for it to

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continue to be ignored. The author offers as explanation for the denial of the child as a source (rather than merely a recipient) of stimulation, the view (which has risen historically from American political and social philosophy) that the contribution of the child would be equated with the operation of genetic or congenital factors; such a view is held to be far too conservative. He suggests that perhaps one reason for the failure of socialization research to emerge with much in the way of findings over the past several decades is precisely its lack of attention to the effects of children on their parents, and the view of socialization as a one-way process.

Some suggestions concerning ways in which the direction of correlations can be at least partially determined are offered (for example, predictions concerning interaction contingencies will differ depending upon who initiates the interaction). Some interactional sequences are described and looked at bidirectionally. The mother-infant interactions described are noted to have the qualities of a well-practiced game between two participants. It is also suggested that a decrement in maternal attachment might occur if general changes in infant behavior, particularly eye-to-eye contact and smiles, did not engender in the mother a feeling of reciprocal relations.

One of the major problems in interactional analysis (viewed in both directions) is the absence of a method of conceptionalizing sequences so that the contribution of both participants is identified. Nonetheless, some data cited provide considerable evidence for attention to the behavior of infants. Of 29 instances of a mother looking at her infant, 15 were preceded by his crying. Of 13 instances in which she held him in an upright position, 9 were preceded by his crying or fussing. In another study, the most frequent goal (as judged by observers) of mothers of toddlers in all but 1 of 18 behavior records was to get the toddler to cease his demands on her; clearly these were not passive children.

The available data on interaction do not support the concept of the irrelevance of behavior of the young, according to this author.

Bell, S. M.
The development of the concept of object as related to infant-mother attachment. Child Development, 1970, 41, 291-311.

This study was designed to examine the relationship between the attachment process and the development of the concept of object. Specifically of interest were whether babies tend to be more advanced in the concept of persons than in the concept of inanimate objects as permanent, whether differences in the rate of development of person permanence are related to the quality of an infant's attachment to his mother, and whether differences in the rate of development of person permanence can in turn affect the development of object permanence. The data indicated that the answer to all three questions is yes.

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The subjects were 21 male and 12 female infants and their white middle-class mothers. They were administered scales of person and object permanence, each consisting of 11 items, at about 8-1/2 months, a week later, again at 11 months, and for 17 of the subjects, again at 13-1/2 months. In addition, an experimental strange-situation test was administered at 11 months. The strange test consisted of eight 3-minute episodes designed to permit observation of the baby's response to two brief separations from his mother, and to subsequent reunion with her.

On the basis of their performance on the object and person permanence test, the babies were classified as having a positive décalage (were more advanced on the person permanence scale than on the object permanence scale), a negative décalage (vice-versa), or no décalage (no difference). Décalage refers to the observation (Piaget's) that a child at any given age will perform with varying degrees of success, tasks involving the same mental operations but presented in different contexts. On the basis of their behavior in the strange situation, subjects fell into Group A, those who displayed relatively little proximity or contact seeking behavior, and avoided the mother during reunion, B, those who responded to reunion with more than a casual greeting, and actively sought contact and/or interaction with their mother, or C, those who seemed ambivalent at reunion, and prior to separation did not explore much.

One of the findings was that 23 of the 33 babies displayed a positive décalage, 7 displayed a negative décalage, and 3 showed no significant differences by the third testing session (about 11 months). This discrepancy in favor of person permanence was predicted by Piaget. The analysis of the relationship between décalage and attachment indicated that Group B babies were the only ones to show a positive décalage, and all but one of them did so (he had no décalage). All but one of the babies in Groups A & C had a negative décalage at some level of development (one in each group had no décalage). When the babies in the positive décalage group were compared with the others in terms of the maximum level of development of the object concept they had achieved, they were found to be significantly more advanced than other babies at every testing session. Babies in the negative décalage group were not even more advanced than positive décalage babies on the object permanence task taken alone. Some infants (who had not reached scale ceiling and who had shown a consistent, large, positive décalage at least once at 8-1/2 and again at 11 months) were tested again at 13-1/2 months, along with 7 of the 10 original babies in the negative and no décalage groups. The positive décalage subjects (subdivided into two groups of five each) had reached higher levels of object permanence by 13-1/2 months. Moreover, although they had scored lower on the object permanence scale when compared with the negative (no) décalage group at 11 months, significantly more of them had completed or almost completed that scale by 13-1/2 months.

The most significant finding of this study is that the development of the object concept is intimately associated with the attachment of a baby to his mother. The acquisition of person permanence seems to be more sensitive to favorable and unfavorable environmental circumstances. The link between attachment and the development of person permanence seems likely to be found in the quality of mother-infant interaction during the formation of these affective and cognitive structures. Attempts to link the development of object permanence to socio-economic status (mostly unsuccessful) have not examined this important dimension transcending class boundaries. Finally, if the existence of a positive décalage for person permanence can be said to reflect a favorable social environment, the results indicate a normative tendency in that direction.

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Bell, S. M. & Ainsworth, M. D. S.
Infant crying and maternal responsiveness. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

A longitudinal study based on home observations was designed to assess the relationship between an infant's cries and his mother's responsiveness.

Sixteen boy and ten girl infants were observed with their mothers (all white, middle-class) for approximately 16 hours in each of the 4 quarters of their first year. Frequency and duration of crying, and frequency of crying clusters were analyzed in relation to the number of cries ignored, duration of maternal unresponsiveness, types of interventions, and effectiveness of interventions. The proportion of total cries emitted under conditions of no proximity (usually being held) was also determined. Infants were ranked on 3-point scales for activity level during the first 6 weeks of life and for subtlety, clarity and variety of communication during the 8-12 month life period.

The results indicated that the average one-year old cries as frequently, but for briefer periods (mean 4.4 minutes per waking hour in fourth quarter vs. 7.7 minutes in first) than the tiny infant. Only toward the end of the first year were stable, idiosyncratic crying characteristics developed. However, maternal tendencies to respond to crying with more or less delay, or to ignore crying altogether were relatively stable over the first year. Moreover, except in the first 4 months there is a tendency for babies who cry more frequently to have mothers who more frequently ignore their cries, and this appears to be an effect of the mother's responsiveness rather than of the baby's frequency of crying. Mother's who ignore and delay responding to their infant's cries when he is tiny have babies who cry more frequently and persistently later on, thus a vicious spiral becomes established. This in turn further discourages the mother from responding promptly and results in a further increase infant irritability. While picking up and holding a baby is the most effective method of terminating his cry throughout his first year, the single most important factor associated with a decrease in frequency and duration of crying is the promptness with which a mother responds to cries. Also, babies with the most well-developed communication skills at 8-12 months were the ones who cried least and whose cries had been promptly heeded.

The authors note that it appears that mothers and infants form an interactional dyad. They suggest that ethologically, it is of survival value for an infant who has lost proximity to his mother to emit a perceptible vocal signal and it is equally of advantage for his mother to respond promptly. They therefore suggest that babies may be preprogrammed to cry when out of contact or distressed, and this is adapted to the prototype of a responsive mother. They also point out that their results provide no evidence for an extinction process; learning theory would predict that crying should decrease through maternal failure to respond contingently to it. They argue that crying is one manifestation of an emergent communication system, and that in responding to a baby's signalling behavior a mother provides feedback which fosters the development of flexible, means-ends communicative behavior.

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Bloom, K., & Erickson, M. T.
The role of eye contact in the social reinforcement of infant vocalizations. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

The importance of eye contact in social reinforcement of infant vocalization was studied in two experiments.

In the first study, a two-month-old male was observed during six baseline sessions, six conditioning sessions, and six extinction sessions. Each conditioning session consisted of four trials, each of four minutes duration. The experimenter wore eye glasses in all four trials; in two of the four, the lenses were regular glass and in two trials skin-colored opaque shields were placed behind the glass, with a pin-hole so face-to-face contact could be maintained. Vocalizations were reinforced by smiling, touching the subject's face and saying "tsk , tsk, tsk". During baseline sessions the mean clear lens vocalization rate was 6.0; the mean opaque lens rate was 3.9. During conditioning, the mean clear lens rate was 15.3; the opaque lens rate was 8.5. Finally, during extinction, both rates of vocalization were 10.4. Lack of eye contact thus appeared to attenuate the effectiveness of the social reinforcement.

In a second study, the role of eye movement was examined with a three-month-old female subject. The opaque lens condition was replaced by a photo lens condition in which life-size color photographs of the experimenter's eyes were placed behind the lenses. Mean vocalization rates during the baseline sessions were 7.7 for the clear lens condition and 6.1 for the photo lenses. During conditioning, the respective rates were 12.8 and 13.0, and during extinction they were 7.1 and 7.5, respectively. Thus, eye movement does not appear to be a necessary component for the reinforcement effect of eye contact.

The results are interpreted as an indication that eye contact can serve as a setting event (a stimulus or environmental event which interacts with an ongoing stimulus-response relationship) for infant social behavior.

Bronson, G. W.
Sex differences in the development of fearfulness: A replication. Psychonomic Science, 1969, 17, 367-368.

Sex differences in fear reactions to strangers were examined. The data were obtained from a longitudinal study done by Ainsworth in which 24 infants were observed at home at 3 week intervals during their first year, and then tested in a controlled strange situation at one year. The data reported here are based on an episode in which a strange person entered the room and sat and talked with the mother for 1-1/2 minutes while the infant remained free. Then the stranger approached the child and attempted to play with him. The infant's reactions were coded on 5-point scales and were related to 5-point scale ratings made during previous observations which indicated the age of onset of fearfulness of strangers (with some effort made to distinguish fearfulness from interest in novelty).

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For males, but not for females, an early onset of fear was significantly related to heightened fearfulness at one year ($r = -.48$ for boys, $-.05$ for girls). Comparable data from the Berkeley Growth Study proved to be similar; the correlation for boys was $-.46$ and for girls, $-.06$. In both studies, the observed age distributions for onset of fear were almost identical for the two sexes (and for both, the age at onset ranged widely, from about 2 to 14 months). These results do not agree with the Robson, Pedersen, and Moss (1969) findings that females on the average develop fear reactions earlier, but those data are more suspect because they were based on maternal report, not on observation.

The author notes that a careful analysis of patterns found in the Berkeley Growth Study indicated that the difference in predictive value of age of onset of fear for the two sexes cannot be readily explained by differences in maternal behavior toward male and female infants. The data are interpreted as supporting the notion that sex-linked constitutional differences interact with experience to determine the development of fear in early childhood.

* While it is not reported, it is likely that the sex of the stranger in these studies was female; male strangers were used in the Robson, Pedersen and Moss studies.

Bronson, G. W.

Infants' reactions to an unfamiliar person. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

This paper describes a study of the onset and early development of an infant's fear of strangers. Home observations were made for 16 male and 16 female babies at 3, 4, 6-1/2 and 9 months (this was a short-term longitudinal study). Reactions to the approach of a male stranger were videotaped and later coded. The stranger appeared at about two feet from the baby (out of sight previously), who was in a crib at 3 and 4 months, at 6-1/2 months in an infant seat and at 9 months on the floor. He smiled slightly and spoke to the infant, repeatedly calling its name and asking for a smile. Two such approaches were made on each of two visits at each age. Uneasiness was inferred from either crying or a clearly evident frown.

The percent of observations in which infants showed wariness went from about 18% to about 43% at 9 months. The percentage of infants showing wariness on at least one of the four trials at each age went from about one-third of the sample at 3 months to about two-thirds at 9 months. (Discrepancy in these figures reflects the inconsistency of the babies' responses at a given age level.) No sex differences were apparent. When the 3 and 4 month observations were combined, about 47% of the infants showed wariness to a male stranger. This finding is surprising in view of the commonly quoted notion that fear of strangers develops during the second half of the first year of life. The author notes that a

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few other studies have also reported early wariness. He also calls attention to the fact that four observations were made for each child at each age, and the infants were not consistently wary across such observations, so that if he had made only one (as in most previous studies) the percentage of infants who displayed uneasiness would have been lower. He also notes that procedural differences may account for the various differences in findings.

Some changes with age in the expression of fearfulness are noted. At 3 and 4 months of age, protracted staring at the stranger was common, but had almost disappeared at 6-1/2 and 9 months. Furthermore, the unsmiling examinations of the stranger in early months were frequently terminated by a smile, but later, more often terminated by turning away. The incidence of gaze aversion increased with age, even when the age-linked increase in wariness was partialled out by examining only the episodes in which the infant was neutral or upset. Only in the second six months did the infants seem to be able to resist orienting toward the verbally insistent stranger.

At all ages, if the infant was going to smile, he did so within a few seconds. However, the onset of crying took much longer. This delay reflected protracted examination in the early months but turning away in the later months.

* The results indicate that most infants begin to be wary of strangers as early as the fourth or fifth month, but at that age take some time to make a specific response. Later, when identification of a stranger as such is presumably less difficult, the response (to turn away, most often) is rather quick. The author suggests that with experience the infant encodes and categorizes the characteristics of unfamiliar persons, and his later responses will therefore be a reflection of the quality of previous encounters, rather than their quantity; learning in the traditional sense will thus come to shape reactions to new people.

* The results, which indicate that a majority of infants display uneasiness with strangers by 9 months of age, contrast with those of Rheingold reported at the same meeting.

Bronson, W. C.

Exploratory behavior of 15-month-old infants in a novel situation. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

The study reported is part of an investigation of exploratory and social behavior throughout the second year of life. It is the author's assumption that the maintenance of a proper balance among four goals directs most of behavior observed in any situation during the second year of life. They are 1) to maintain proximity to the mother (attachment),

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2) to explore the novel (curiosity), 3) to avoid the too unfamiliar (fear), and 4) to obtain effects contingent upon his own action's (effectance). In this study a novel situation was used to assess the interplay of these behaviors.

The 20 boys and girls were tested close to their 15 month birthday with their mothers present. All were from middle-class, well-educated families and had been observed at two week intervals since 12 months of age. The observation took place in a room containing a mother's chair, stranger's chair, a small toy dog and the novel Object, which was 3 feet high, 2 feet wide, and had revolving styrofoam balls, sequins, mirrors which reflected light, and a lever which when pushed to the left controlled additional small colored lights and when pushed to the right, activated a buzzer emitting a low somewhat harsh sound. The mother brought the baby into the room, took him to the Object (1 minute) taught him to use the stick, and went to her chair, taking him with her. She then encouraged him to approach the Object if he did not do so on his own. After about 2-1/2 minutes, a strange young woman entered the room and sat in her chair for a minute; she then approached the child in a friendly manner, discussing the Object with him for about 3 or 4 minutes.

The author felt that the data (based on coding of video tapes) led to two main statements about the situation. First, exploratory activities tended to decrease under the impact of the entry and silent presence (on chair) of the stranger, and then the mean scores increased back to their pre-entry level when she behaved in a friendly manner. This is interpreted as indicating that the presence of a strange person acting strangely induces in these 15-month old babies a period of appraisal while in a (natural) state of anticipatory wariness. As the stranger becomes friendly, she supplies the necessary information which is that her behavior is not different from what babies generally expect from adults, so the appraisal terminates. The second statement refers to sex differences. Girls gave less attention to and spent less time with the Object than boys, and gave more time and attention to the mother. Boys also exploited the control properties of the Object far more than girls, who tended merely to gaze at it.

Four distinct patterns of behavior were observed. Actively Engaged children attended intently to the object and spent much time with it, paying little attention to their mother. Actively Engaged, Sharing with Mother children were all involved with the object but attended considerably to their mother (although not by being near her). The Wary children attended intently to the object but avoided its vicinity, remaining close to their mother, to whom they also attended a great deal. Finally, a Residual group differed in all respects from the others and contained a variety of profiles; they directed more attention to their surroundings and spent less time near the object or mother. In terms of the balance of goals described earlier, the Wary pattern of behavior clearly reflects a balance tipped towards the goal of maintaining distance from the too unfamiliar. Actively Engaged babies are differentiated from the Residual group because they use the contingent effects of the Object to a considerable degree; the Residual group members seem not to be attracted by this possibility.

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The author hopes to delineate further patterns of behavior and the conditions which shape them.

Gaines, B., Anderson, E. P., & Hartup, W. W.
Interrelations in the attachment behavior of human infants. Developmental Psychology, 1972, 6, 218-229.

The purpose of this study was to determine the extent to which various attachment behaviors (visual regard of mother, vocalizing to her, smiling at her, touching her, maintenance of proximity to her, crying when separated from her, and orienting toward the locus of her disappearance) are interrelated. A tacit assumption of much previous work is that such behaviors reflect a unitary trait (attachment).

One group of 14 boys and 14 girls was tested when between 9.9 and 11.5 months old (mean 10.7 months), and a second group was tested at 13.9 to 15.3 months (mean 14.6) of age. The samples were quite homogeneous; most of the fathers were university students. Four months later, 10 boys and 13 girls from the first group (now an average of 14.75 months old) and 13 boys and 10 girls from the second group (now 18.65 months average) were retested. At each age, subjects were observed during a nonseparation (mother present) and a separation (mother absent) session, held on consecutive days. In the nonseparation condition, the mother was seated on a chair and the infant was placed on the floor with some toys, in an observation room for the entire ten minute period. The first three minutes of the separation condition were the same. Then, the mother got up, said good-bye and left the room. After two minutes, she returned, sat down, and maintained nonseparation conditions for two minutes.

The results pertaining to frequency of attachment behaviors were not surprising. Visual regard, touching, and proximity to the mother were more frequent following separation than prior to separation. Crying and orientation to the mother's disappearance point were more frequent both during and following separation than before. The absence of age changes in the frequency of such behaviors was striking, and would lend support to the contention that specific attachments manifest themselves full-blown at their beginning. The constancy across age in frequency, suggests that either the behaviors are resistant over time to changing feedback conditions, or that the social contingencies themselves do not change appreciably during the eight month age period examined, the explanation viewed by the author as more likely.

When the various attachment behaviors were correlated, a pattern of attachment could be seen. Visual regard of the mother was significantly correlated with touching her and staying close to her. Further, infants who vocalized to their mothers did not necessarily seek physical contact or proximity, but vocalization was related to the total amount of visual regard (this would seem to be unrelated to the attachment pattern in the mother's presence, but the pattern during reunion differed somewhat from the pattern found for the other observational periods). Touching and proximity prior to separation were positively correlated with crying during separation. The author interprets the obtained interrelations as evidence of an attachment pattern, and therefore, support for attachment as a unitary concept.

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Coates, B., Anderson, E. P., & Hartup, W. W.
The stability of attachment behaviors in the human infant. Developmental Psychology 1972, 6, 231-237.

In order to predict later development from earlier social responsiveness, behaviors which are stable on at least a short-term basis must be identified. The authors therefore studied the within-session stability, day-to-day stability, and stability over a four-month period of a variety of attachment behaviors. The subjects and procedure are reported in "Interrelations in the attachment behavior of human infants" by the same authors.

The results indicated that attachment behaviors do not form a uniformly stable system in 10, 14, and 18-month-old infants, and therefore suggest that some behaviors would be more appropriate thanothers for use in longitudinal studies. Specifically, visual regard and vocalizing to the mother as well as crying, looking at the door through which the mother left the room, touching the door and proximity to the door, had little stability of any kind. Touching the mother and proximity to the mother were more stable on both a short-term (within-session and day-to-day) and a long-term (over four months) basis. The authors note that social learning theory contends that stability in an infant's attachment behavior is a reflection of the stability of his mother's behavior. Within that context, these results would therefore imply that mothers are stable in their childrearing practices for some attachment behaviors but not for others.

The authors state that for longitudinal study these data suggest that proximity to mother and touching her be used as indices of attachment.

However, both of these suggested indices of attachment are proximal (as opposed to distal), and it has been suggested elsewhere by Lewis that there may be sex and individual differences in such behaviors, a complicating situation.

Corter, C. M., Rheingold, H. L., & Eckerman, C. O.
Toys delay the infant's following of his mother. Development Psychology, 1972, 6, 138-145.

One of the several indices of infant-mother attachment sometimes discussed is following – the extent to which the infant attempts to follow (visually, or physically) his mother as she moves away from him. Allowing the infant to separate himself from his mother (rather than vice-versa) may be a condition necessary for him to maintain exploration at a distance from her. These experiments were conducted to test the hypothesis that in an unfamiliar environment an infant will follow his mother immediately as she leaves him and will not stay to play.

In the first study, eight males and two females were assigned to a toy group and five females and five males to a no-toy group; all were between 9.6 and 10.5 months of age and

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able to locomote. Under the toy condition, following a 10 minute adaptation period in the reception room, the mother placed the infant in a small room and then walked into an adjoining room and sat down out of sight of the infant. The no-toy condition was the same except that there was no toy in the child's room. After 10 minutes of observation and a 5 minute break, the procedure was repeated for 5 minutes; however, both groups were now given the toy.

The infants without a toy followed their mother without delay (mean of 23 seconds); the infants with a toy took much longer (mean 215 seconds, $p<.01$). The 5 infants in the toy group who watched their mothers leave took slightly longer to follow (228 seconds) than those who didn't watch (203 seconds) so the effect of the toy was not just diversion from the mother's departure. Fussing and crying occurred during relatively few observation intervals for both groups and began almost as often in the room where the mother was as in the start room. On the second trial, the (now) novel toy group (children who had previously had no toy) took longer to follow their mothers (mean 135 seconds) than those in the (now) familiar toy group (children who had had the toy previously; mean 51 seconds). They also spent longer touching the toy (mean 109 seconds versus 14 seconds). A novel toy was thus more effective in delaying following than a familiar toy. While the number of intervals in which vocalization, fussing, or crying occurred did not differ reliably for the novel and familiar toy groups, more of the children in the familiar toy group cried (six versus none). The unchanging environment of the familiar toy group led to distress (perhaps as a result of boredom?).

A second study was conducted, with seven males and six females in a one-toy group and six males and seven females in a six-toy group; they ranged in age from 9.6 to 10.4 months. The procedure was the same as in the first study, except there was only a single trial of 12 minutes. The one-toy condition was identical to the toy condition of the first study; in the six-toy condition, five additonal toys were in the start room with the infant. Both groups followed their mothers after a considerable delay (mean of 248 seconds for one-toy infants, 337 seconds for six-toy infants, difference nonsignificant). The infants in the six-toy group tended to return more often and touch the toys longer, which resulted in their spending significantly more total time in the start room (453 versus 318 seconds average). Fewer than one-third of the infants cried or fussed, and of these, two did so after falling.

When the data for the sexes were compared, latency in following the mother was reliably greater for girls in two of the three groups which had approximately equal numbers of boys and girls. Girls also spent longer touching the toy.

These findings, while indicating that infants do follow their mothers, suggest that certain conditions delay following even in an unfamiliar environment. They imply that an infant may seek proximity to his mother not simply because the unfamiliar environment is too threatening, but because it may offer nothing nearly so interesting as his mother. (Infants in the no-toy group followed most quickly, with familiar-toy infants next and novel-toy infants last). If the mother acted as a base of exploration for the infant, it was in the sense that he knew she was there, not because he could see her. The finding that an increase from one to six toys did not delay infants sianificantly from following their

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mother may indicate a limit to the amount of time an infant will remain away before he goes to her. The six-toy infants did return to the toys more often so apparently they had not exhausted the stimulation in their environment before initially leaving.

Deal, T. N., & Montgomery, L. L.
Techniques fathers use in teaching their young sons. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

Several investigators have studied the effect of maternal teaching style on cognitive performance in young children. The impact of fathers on cognitive development has received little attention. The purpose of this study was to provide some description of teaching techniques used by fathers with their young sons and to test the hypothesis that there are significant differences between the teaching styles of fathers from two occupational groups.

Eleven fathers from professional occupational groups (required a college education) and eleven from non-professional groups (not requiring college; 10 of the 11 had completed high school and 3 had attended college) were studied with their sons (mean age 5 years; mean age of fathers - 32 years).

The fathers were observed while teaching their sons two sorting tasks; one required sorting by category, the other by size and shape.

Professional fathers verbalized more, used more complete sentences, used verbal rewards more, taught beyond the task instructions and more frequently used complete than incomplete sentences, when compared with non-professional fathers. Non-professional fathers more often taught the category sorting task in segments and corrected their sons' errors nonverbally than did professional fathers.

It was concluded that fathers do use different teaching techniques, and these techniques tend to vary in amount and complexity of verbalization and frequency of verbal reward. These findings are similar to those found in studies of maternal teaching style. It should be noted that while the fathers were categorized according to occupation, all fell into a broad middle-class category (all but one had completed high school, and he had attended high school).

* While the children in this study were not infants, it is one of the few investigations of father-child relationships.

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Fleener, D. E., & Cairns, R. B.

Attachment behaviors in human infants: Discriminative vocalization on maternal separation. Developmental Psychology, 1970, 2, 215-223.

This study was designed to assess whether human infants will show discriminative crying upon being separated from their mothers (that is, will they show a greater tendency to cry when separated from their mothers than when separated from another female adult), and to determine if the likelihood of crying varies with age. The study was cross-sectional rather than longitudinal (different infants at different ages rather than the same infants at different ages); 31 male and 33 female infants aged 3 to 19 months served as subjects; the majority were from middle-class families. In a laboratory setting, after an introduction period of 10 minutes, the infant was placed in a crib, with his mother and another adult female seated about five feet away. Alternatively, each left the room twice for 60 seconds at a time. The baby's vocalizations were tape-recorded and he was observed through a one-way mirror.

One of the most striking results was the persistence of crying; if an infant began to cry vigorously he was likely to continue. This was true both for those who spontaneously started to cry before anyone left the room, and for those who began to cry in someone's absence. Considering all infants as one group, crying during maternal absence was slightly (and signifi-fantly) greater than during the absence of the assistant. This result was due almost entirely to the older children in the sample; the infants 12 months and older averaged substantially more crying during their mother's absence; for younger children, aged 3 to 5, 6 to 8, and 9 to 11 months, the differences were not significant. It was also the case that for the older infants, the initial instances of crying were more likely to occur during the mother's absence. There were no overall sex differences in either total or discriminative crying, nor was crying related to the mothers' reports of how they handled various situations in relation to crying (probably shaky data).

Because of the few observations, these data were relatively insensitive to cases where discriminative crying had a low probability of occurrence (i.e. near threshold). The question of whether discriminative crying emerges full-blown at some mean age (suggested here to be about 12 months) or gradually increases in frequency with age would have to be answered with a longitudinal study. It is interesting to note that of the 64 infants, only two showed precise discrimination (cried only in the absence of their mother).

Several possible explanations of discriminative crying are offered. One is Bowlby's ethologically based notion that vocalization serves as an innate releaser of maternal retrieval behaviors, that is, has survival value for the infant, who is presumably in most danger when away from his mother. However, this does not entirely explain how separation leads to vocal-ization. Another proposal is that contextual conditioning occurs; the abrupt interruption (the mother's leaving) of ongoing response chains leads to heightened random activity, including vocalization. Vocalization has been suggested by Carmichael to be of no greater mechanistic significance than other random acts of the child. To the extent that the vocal behavior serves to remove the conditions evoking it by bringing the mother's response , the behavior should become conditioned to these circumstances.

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* The difficulty with the contextual conditioning explanation lies in the last sentence of the previous paragraph. Bell & Ainsworth (1971) have reported data indicating that the infants who cry least are the ones whose mothers have in the past responded most promptly to their cries, the exact opposite of what would be expected on the basis of learning theory. They invoke the ethological explanation of the phenomenon of separation crying.

Foss, B. M. (Ed.)
Determinants of infant behaviour. London: Methuen & Co. Ltd., 1961.

In this book the proceedings of the Tavistock study group on mother-infant interaction held in the house of the Ciba foundation in London, in September, 1959, are reported. The meetings were convened by John Bowlby; three main groups of workers were included. Some were already engaged in first-hand studies of the behavior of infants and young children in a social setting, some represented those (more numerous) making similar studies in animals, particularly mammals, and some were clinicians who were expected to be able to contribute from their experience of what seems pathologically and therapeutically relevant. Seven prepared papers were presented; they emphasized empirical findings. Improvised contributions from Gunther, Hinde, and Prechtl are also included in the book, along with the discussions which took place following each presentation

Part I of the book addresses the topic of neonate behavior and includes a paper by H. Blauvelt & J. McKenna (Mother-neonate interaction: Capacity of the human newborn for orientation), and contributions by M. Gunther (Infant behaviour at the breast) and by H. F. R. Prechtl (Neurological sequelae of prenatal and paranatal complications). Part II is concerned with animal experiments. It includes papers by J. S. Rosenblatt, G. Turkewitz, & T. C. Schneirla (Early socialization in the domestic cat as based on feeding and other relationships between female and young), and H. H. Harlow (The development of affectional patterns in infant monkeys). Part III, on social behavior, includes papers by M. David & G. Appell (A study of nursing care and nurse-infant interaction), H. H. Rheingold (The effect of environmental stimulation upon social and exploratory behaviour in the human infant), and J. A. Ambrose (The development of the smiling response in early infancy). It also includes contributions by G. Appell & M. David (Case notes on Monique) and R. A. Hinde (Changes of responsiveness consequent upon performance). Part IV, titled, A Theoretical Approach, consists of a paper by J. L. Gewirtz (A learning analysis of the effects of normal stimulation, privation and deprivation on the acquisition of social motivation and attachment), and a comment on that paper by J. Bowlby.

* This book includes some of the earliest (but still quite recent) work on mother-infant interaction, although it actually contains little about interaction and more about the infant.

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Friedlander, B. Z., Cyrulic, A., & Davis, B.
Time-sampling analysis of infants' natural language environments in the home. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

A time-sampl[illegible]ape recorder system was placed in a central location in the homes of two families of com[illegible]able socio-economic status. Both families included a 12-month old infant.

Striking differences and similarities were found in the language interaction patterns. Radio and television accounted for about 70% of the language environment in one home but only 25% in the other. When only utterances directed toward the child were compared, the sources were almost identical for the two families; about 70% from the mother, 25% from the father, and the rest from guests.

Based on the widely held notion that reinforcement and refined restatement of infants' spontaneous utterances play a major role in shaping emerging language, it was expected that reflective expansion and reduction of the infant's own utterance would be prominent in parental utterances. They were not; tuitional modeling, imitation, and questions accounted for the bulk of parents' utterances directed toward the two infants.

The technique holds promise for investigating babies' natural language environments. The results of this particular study should be accepted with caution, being based on only two subjects.

Goldberg, S., & Lewis, M.
Play behavior in the year-old infant: Early sex differences. Child Development, 1969, 40, 21-31.

A free play situation was used to observe sex differences in the behavior of 13-month old children toward their mother, toys, and a frustration situation. Information on the mother-child relationship at 6 months was also available.

Two samples of 16 boys and 16 girls each (total 64) were seen at 6 and 13 months. Their mothers had an average of 13.5 years of schooling, their fathers 14.5 years average. The subject and his mother spent 15 minutes in an observation room containing nine simple toys. The mother's chair was in one corner of the room.

Numerous sex differences in response to mother were observed at 13 months. More girls returned immediately after being placed on the floor, and girls returned more quickly than boys (mean 273.5 seconds vs 519.5 seconds). Girls made more returns, touched their mothers longer, returned to touch their mothers more often, spent more time looking at their mothers and more time vocalizing to them. They also spent more time close by their mothers. When a barrier of mesh on a wood frame was erected between the child and his mother and the toys (at the end of the 15-minute observation), girls cried more (mean 123.5

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seconds vs 76.7 seconds for boys), and spent more time standing at the center of the barrier. Boys spent more time at the ends, trying to get out. In ranking of toy preference, boys and girls were similar. However, individual toys were played with differently in amount and manner. Girls tended to choose toys involving more fine than gross muscle coordination; boys did the reverse and were also more active and banged toys more.

When mother-infant behavior at 6 months was examined, it was found that mothers touched, talked to and handled their daughters more than their sons. When they were 13 months old, girls touched and talked to their mothers more.

The data demonstrate that sex differences in behavior patterns are present in the first year of life and may bear some relation to mother's response to the infant at 6 months. It is suggested that parents may reinforce behaviors they consider to be sex-role appropriate, and in the first couple of years the child thus learns these sex-role behaviors independently of any internal motive. As he becomes older (above 3), the rules for these behaviors may become clearer and he will then develop internal guides to help him follow the rules. This explanation makes use of both reinforcement and subsequent cognitive elaboration. Clinical observation indicates that parents are concerned with early display of sex-appropriate behavior; many mothers become irritated when the sex of their clothed infant is incorrectly identified, revealing a cognitive commitment to the infant as a child of a given sex.

Grunebaum, H. U., Weiss, J. L., Cohler, B. J., Gallant, D. H., & Hartman, C. R. Mentally ill mothers in the hospital and at home. Unpublished manuscript, Massachusetts Mental Health Center, 1969.

It is pointed out that there are growing numbers of psychotic mothers and that these mothers, for a variety of reasons, are spending an increasing amount of their time with their children. It is important that personnel think of a hospitalized woman as a mother and not just a patient. However, it is not rare to find that neither hospital authorities nor hospital records can say whether a particular patient has children. This may stem in part from the psychiatric emphasis on the patient's early childhood rather than her present life situation.

The experiences of the authors at the Massachusetts Mental Health Center are discussed. A Maternal Attitude Scale was developed, based on Sander's view of the mother-child relationship as a series of sequential issues posed for the mother by the child's development. When 34 hospitalized mothers with children under three were compared with 35 non-psychiatric matched controls, it was found that hospitalized mothers tended not to be attuned to the subtle nuances involved in rearing children and to deny the difficulties of being a parent. This pattern of denial was most highly associated with a psychotic diagnosis and a poor premorbid history.

The question of the impact of disturbed mothers on the development of their children is important. The effects of being reared by a psychotic mother cannot be separated from those due to inherited predispositions. While the offspring of psychotic parents have an increased probability of developing serious emotional disturbance, the majority of those offspring do not develop psychopathologically. There is some evidence that the probability of emotional

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disorder is higher in children whose mothers have been diagnosed as schizophrenic. Children of hospitalized schizophrenic mothers apparently have a considerable incidence of pathological adaptation even when raised in an adoptive home. Gallant's work suggests that when deviations occur, they do so very early; certainly by three years of age and probably by one. The children of chronic schizophrenic mothers appear impaired in selective attention to the environment when compared with children of acute schizophrenic mothers, who are often indistinguishable from normal controls on measures of sustained visual attention.

Children involved in the joint admission program were compared with children of psychotic mothers who did not participate in such a program. While the interpersonal relationships of most children of both groups were impaired, in general the joint admission children did better on cognitive and other tasks; in language development, they did as well as children of matched non-psychiatric mothers.

A program of intensive psychiatric nursing home after-care to discharged mothers of children under six was developed. It is apparent to the authors that while the mother leaves the hospital largely free of the symptoms for which she entered it, rarely has she learned anything new about herself and even more rarely has anything changed in her relationship to the significant others in her life. It is important to involve the husband, since he has greater concern and participation than usual in the tasks of childrearing. The authors have observed that in many instances hospitalization soon after the birth of a child reflects difficulties in the marriage more than problems in becoming a parent.

Halverson, C. F., & Waldrop, M. F.
Maternal behavior toward own and other preschool children: The problem of "ownness". Child Development, 1970, 41, 839-845.

In this study, the consistencies and inconsistencies when mothers interact with their own children and with other children of the same sex were examined. Mothers of 23 male and 19 female 2-1/2 year-olds were observed. As part of a longitudinal study, these children attended a half-day nursery school in same-sexed groups of five children for about five weeks. Each mother was asked to assist in administering developmental tasks to her own and to one other child. Six tasks were given each child; of these, four were Stanford-Binet intelligence test items (the form board, block stacking, bead stringing and picture vocabulary items). In the remaining two tasks the mother was to try to get the child to tell a story (impossible for most 2-1/2 year olds) and have the child place marbles in a hole. The mothers were told that no child would be able to do all of the tasks.

The mother-child verbal exchanges were tape recorded and coded using a modified Bates Interaction Analysis system (positive encouraging statements, negative controlling statements, total words spoken, and total statements were recorded for the mother, and for the child, the time spend verbalizing).

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Of the 42 mothers, 41 gave more positive statements to the other than to their own child, and a higher mean number of negative statements to their own child. In general, the more the child talked, the more the mother talked (the average correlation for all children was .68). Mothers talked significantly more when with girls, and girls talked more than boys. Boys who had previously in the study been rated as impulsive and uncontrolled had mothers who used more negative controlling statements with them in comparison with the number they used with other boys. The mothers seemed to view the tasks as an achievement situation.

The author notes that both consistency and inconsistency were found to be related to ownness.

* While this study was done with older children, the question of the extent to which mothers behave differently with their own and other children is worth raising for day care situations in which mothers are involved.

Lewis, M.

Mother-infant interaction and cognitive development: A motivational construct. Paper presented at the symposium on issues in Human Development, held by the National Institute of Child Health and Human Development, Philadelphia, November 1967.

It is hypothesized that the quantity and timing of maternal response to the infant's behavior, and the degree of consistency of her response, have important motivational qualities in developing and reinforcing the infant's belief that his behavior can affect the environment.

In support of this hypothesis, the author cites Provence & Lipton's finding that institutionalized infants differed from home-reared infants not in whether they possessed a skill (e.g. the ability to stand up in their cribs) but whether they used and practiced the skill. Also cited was Solomon's finding that dogs who had experienced unavoidable shock in a classical conditioning situation were unable to learn in an instrumental avoidance situation. This was interpreted as an indication that the animal had learned through noncontingency training that nothing he did mattered.

A controlled naturalistic setting was used to study mother-infant interaction for twenty 12-week-old infants. Observations were made over a one-hour period in a waiting room situation, after which the infant received four trials of a redundant visual signal and his rate of habituation (previously suggested to be related to cognitive capacity) was recorded. Response decrement (rate of habituation) was positively related to mother's amount of touching ($r = .45$, $p < .05$), looking ($r = .65$, $p < .01$), holding ($r = .38$, $p < .08$) and smiling ($r = .26$) and was negatively related to the amount of time the mother spent reading magazines ($r = -.38$, $p < .08$). The percentage of time the mother responded to the infant's crying was significantly related to response decrement ($r = .45$, $p < .05$), as was her response to vocalization ($r = .53$, $p < .05$), reflecting the importance of the contingency of her response.

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The author argues that the expectation that his action can have a pay-off is learned very early by an infant, and failure to gain such an expectation should reduce his interest in exploration and in practicing newly developed skills. This learned motive is thus suggested to be an important underlying principle upon which subsequent maturational processes will be built. Because it is learned quickly and early, its effect may tend to be interpreted as a reflection of inherent individual difference. On the other hand, basic attentional differences could facilitate recognition of the contingency relationship. The author also raises the possibility that the acquisition of this motive might have a critical period. Finally, it is noted that the quantity of contingency is important; no infants experience either total contingency or total non-contingency. It is also argued that low SES mothers are less likely to perform the behaviors necessary to develop the motive. The social milieu as the child grows older undoubtedly reinforces this feeling of ineffectiveness developed early in infancy, thus explaining the social class differences typically found in internal vs external control.

* This hypothesis should be subjected to further documentation.

Lewis, M.

State as an infant-environment interaction: An analysis of mother-infant interactions as a function of sex. Merrill-Palmer Quarterly, 1972, 18, 95-122.

The author begins by examining five general ways in which the concept of state has been used in studying behavior. Changes in specific state have been examined, states have been measured and related to one another, state and responsiveness have been related, individual differences in state have been examined, and some antecedents of state have been studied. This examination of the current usage and definition of the term leads to the conclusion that state is a widely used concept of uncertain meaning. The author argues for the study of state as an interaction, as a function of some past set of behaviors of the infant and his environment.

Some empirical findings about individual mother-infant interactions as a basis for discussing differential "states" are presented. The subjects were 32 infants observed at three months of age in their homes with their mothers. The entire range of the socio-economic spectrum, both sexes, and black and white racial groups were represented. A behavior checklist divided into ten-second intervals was used to record nine infant and eleven mother behaviors. Two full hours of eyes-open (infant) data were obtained; in one-third of the cases, two visits were necessary.

A variety of interactive analyses were used. Ranging from the lowest to highest level of assessment of interaction they were: behavior frequency, the number of 10-second time units in which a behavior was recorded for both mother and child, the number of units in which a behavior was recorded for both with a judgment made about the nature of the interaction (specific behaviors of one in relation to those of the other), and analysis in which an attempt is made to determine the direction of the interaction.

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The overall frequency data indicated great individual variability for both infants and mothers. No sex differences in infant frequencies were found, but there were maternal differences in relation to the infant's sex. Mothers of boys touched, held , and rocked their children more than mothers of girls, and mothers of girls vocalized and looked at their infants more than mothers of boys. This suggests that boys receive more proximal stimulation and girls receive more distal stimulation in the early months.

There was a relatively strong relationship between maternal and infant behavior. Maternal vocalizing was related to infant vocalizing, as was maternal play. In general, the more frequent the positive maternal behavior, the less fretting/crying in infants. Maternal looking was related to infant movement and noise.

Both infant and maternal behaviors were recorded in 44% of the ten-second observation units, with no sex difference. At the next higher level of interactive analysis, the most common interaction to an infant's vocalization was maternal vocalization, then maternal-hold and maternal-look. Infant fret/cry was most associated with maternal-vocalization, hold and look. Maternal touching was most associated with infant vocalization and movement. Infant vocalization was clearly most associated with maternal behaviors. Individual analyses indicated that the behavior associations of mothers and boys tended to be equally distributed between proximal (touch and/or hold) and distal (look and/or vocalization) behaviors, while mothers of girls tended to use distal behaviors. There were no sex differences in infant behavior in relation to what the mother was doing. Thus, it appears that sex differences are a function of differential maternal responsiveness to boys and girls rather than of infant differences.

The analyses of direction of interaction revealed that infant vocalizations were largely responses to behaviors initiated by the mother, with the exception of maternal vocalization which was more likely to be a response to vocalization initiated by the infant. There appear to be two classes of behavior for three-month-olds: those which elicit maternal behavior (fret/cry, gross movement, and play) and those which are a result of maternal behavior (smiling and vocalization). For boys, vocalization was equally likely to initiate or be a response to maternal behavior, but for girls, it was somewhat more likely to be a response. Furthermore, while mothers are as responsive to vocalization in boys as in girls, perhaps even more so, they are more likely to vocalize themselves when responding to their girls than to their boys.

These results suggest that interaction is very complex. There were enormous individual differences in amount of interaction (varying from 28 to 75 percent of the total observation time). In general, the same infant condition across the sexes was associated with more distal behavior for girls and more proximal behavior for boys. One large source of variance was the sex of the infant, but mother-infant interaction as a function of the sex of the infant was not uniform across all infant behavior. The author suggests that organism status may be a better term than state or condition because it implies an interactive relationship. Individual differences probably lie in the interaction of the organism's traits with the environment rather than in the traits themselves.

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Lewis, M., & Ban, P.
Stability of attachment behavior: A transformational analysis. In M. Lewis (Chm.), Attachment: Studies in stability and change. Symposium presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

Some issues concerning the study of attachment are discussed, and some observational data concerning attachment behavior in one and two year olds are described.

Definitions of attachment typically imply a differential relationship. Accordingly, for a behavior to reflect attachment, its differential use must be demonstrated. Two problems related to the study of attachment are discussed: the behaviors leading to attachment have not been described (although it has been suggested that both parent and infant become attached, so their behaviors must act on one another), and the specific behaviors characteristic of an attachment have not been made clear. The authors stress that the situations in which attachment behavior is measured are important. In particular, the distinction between the mother separating herself from the infant and the infant separating himself from the mother must be kept in mind. Situations in which attachment behaviors can be measured include mother and infant behavior when they are together as well as during separation. The authors feel that distress to departure may be less representative of attachment than responses to her return, in part because the latter seem less subject to learning. The nature of the situation in which attachment is measured is also critical; proximity could be a function of lack of other interesting stimuli or anxiety to novelty as much as attachment. The use of naturalistic situations is recommended.

A second issue in the study of individual differences in attachment, and the stability of differences, concerns the nature of measurement. To measure a single aspect of behavior may be misleading, but there is little experimental data on the relationship of multiple responses. In a time period of rapid change, it would be naive to assume that differential response patterns at different ages cannot reflect the same structure or motive.

A naturalistic laboratory play situation was used to assess attachment behavior in 33 girls and 30 boys at one year of age and again at two years of age. During a fifteen minute period, the amount of time spent touching the mother, in proximity to her, looking at her, and vocalizing to her were recorded.

The results were somewhat complex. Boys showed no change in amount of touching from one to two years of age, but girls showed about a 50% decrease. For proximity, the reverse was true: girls' behavior remained stable and boys' proximity behavior increased significantly. A significant decline in vocalization occurred for both sexes and at both ages girls vocalized more than boys. For both sexes, more visual regard was observed at two years of age than at one year. When these four behaviors were classified on a proximal-distal (close-far) continuum, a trend appeared. If one aim of socialization is to move the child from proximal to distal forms of expression, the sex differences may reflect differential rates of socialization of attachment behavior. It appears that male infants may be encouraged to give up proximal attachment behaviors earlier than females (while mothers initially touch boy infants more than girl infants, by six months they touch girls more).

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Analysis of attachment behaviors at the same point in time (age one or two) indicated no overall consistency, but suggested proximal and distal clusters of behavior. Infants tended to use one mode or the other but not both, although at two years of age this became less so for boys than for girls. Comparisons across age revealed a relatively low level of correlations for all associations. There was a tendency for both boys and girls who at one year touched their mothers a great deal to touch them minimally at two. Looking and vocalizing (the distal behaviors) tended to be positively related from one to two years. Within the proximal and distal behavior clusters, the trend described above was generally maintained. Girls tended to show positive stability in distal behaviors and boys showed stability in proximal behaviors but in a negative sense: high ratings at one were related to low ratings at two. There was a slight tendency for touching at one year to be replaced by much looking at two (a transformational relationship), but distal behavior at one did not tend to be replaced by proximal behavior at two.

Individual stability in attachment behavior was not found. What accounts for the lack of stability? The authors tend away from the interpretation that lack of stability in the attachment structure or motive is the cause. They suggest that transformations in behaviors occur, and that the patterns of transformation vary with individuals. Thus, what is needed is an analysis of patterns of transformation, individual differences in the patterns, and their etiology and consequence.

Lewis, M., & Goldberg, S.

Perceptual-cognitive development in infancy: A generalized expectancy model as a function of the mother-infant interaction. Merrill-Palmer Quarterly, 1969, 15, 81-100.

The point of view and data presented in this article are essentially those found in an earlier paper by the first author (Lewis, 1967. Mother-infant interaction and cognitive development: A motivational construct). Only the further elaborations will be discussed here.

Psychoanalytic theory has emphasized the role of the mother or caretaker for the emotional development of the child. More recently, the importance of the mother as a source of stimulation has been given attention. One approach (for example, Hunt) has emphasized the frequency and variation of early stimulation. This view is criticized because an infant (for example, one living in crowded slum conditions) might receive vast amounts of stimulation which is essentially random in terms of its relationships to him; it is difficult to see how this would facilitate learning. A second approach (for example, Gewirtz) is based on the role of the mother as a source of reinforcement; the mother can encourage the learning of desirable behaviors by contingent reinforcement (it must be delivered quickly because of his short memory span) of these behaviors when they occur. The difficulty with this view is that it limits the infant's response repertoire to those behaviors being reinforced, and it could therefore not account for the variety and complexity of behavior typically seen. The third view, put forth by the authors, maintains that contingency in maternal response is important, not just because it shapes behavior acquisition but because it enables the child to develop an important motive which provides the basis for all future learning, namely the belief that his actions can affect his environment.

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The authors discuss a model of schema development which holds that the amount of response decrement to a repeated (redundant) signal (for example a visual pattern) is a measure of the speed of model (the schema) acquisition and is associated with the efficiency of the model building system (the infant's cognitive capacity).

To support this model, the authors cite research findings which provide evidence that response decrement is associated with organism status variables usually considered to be predictors of efficient perceptual cognitive capacity. In summary, response decrement to repeated signals was found to be related to 1) age, 2) experimentally produced brain lesions in animals, 3) mental disease, 4) birth condition (APGAR ratings), 5) other measure of satiation, 6) socio-economic status, 7) measures of cognitive capacity in the preschool child (response decrement at one year correlated .46 for girls and .50 for boys with Stanford-Binet IQ scores at 3½ years), and 8) performance on a concept formation task.

Lytton, H.
Observation studies of parent-child interaction: A methodological review.
Child Development, 1971, 42, 651-683.

This is a review of parent-child interaction studies, particularly those based on observation, conducted prior to the fall of 1970. Studies focused on the child's behavior rather than on interaction are not included.

Methodological issues discussed in relation to the study of parent-child interaction (the major source of information about the socialization process of the child) are the control of behavior and stimuli, the method of recording behavior (ratings after observation, narrative summaries, use of precoded behavior categories, selective narrative records, and specimen records), the conceptualization of summary variables, the range and type of behavior sampled, reliability and validity of data, and the acceptability of observation to parents. The major objection, that data are distorted, applies to all methods, and for each method the author discusses the ways in which this is true.

The experimenter must decide which distortion he is most willing to tolerate while doing his best to minimize it. Recent improvements in experimental design (such as the combination of structured laboratory interaction with an immediate interview concerning subjective experiences) are discussed. Some suggestions for future research are also included (for example, observations made in an experimental laboratory situation could be followed up with naturalistic observations).

* A very useful summary table of 50 observation studies of parent-child interaction published between 1945 and 1970 is included in the article. The majority of studies were conducted with older children, but some were done with infants.

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Meier, G. W.

Untitled portion of a copy of a grant proposal for research with mothers and infants which comprises part of a program grant (IMRD) at the Kennedy Center.

Some of the studies proposed are described, along with a discussion of relevant literature. The overall program is designed to evaluate the possibility that relations between parent and offspring are a form of communication which comprise a continuing series of stimuli and responses from both, by which one responds to the other and thus is controlled or shaped by the other. The possibility of a fairly fixed sequence of specific contingencies that fit a stimulus-response—reinforcement chain is suggested.

The proposed studies are addressed to the period beginning about mid-gestation and ending about term plus six months. The focus is on behavioral and descriptive variables of mothers during pregnancy and of infants during the new-born period, as well as subsequent mother-infant interaction.

Pilot studies were conducted to assess the validity of the BIAS Scale (Behavioral Inventory for Assessing States of Arousal in the Human Newborn). A revised definition of the scale indicated that 23 behavior patterns accounted for 93% of the variance in a total of 3600 fifteen-second observational epochs, and that these patterns could be used with confidence across subjects of both races and sex. Other pilot studies indicated the usefulness of Markov statistical techniques in studying behavior arousal, and that females are more mature than males in both the temporal and behavioral aspects of sleeping and waking.

The proposed studies include assessments of premature, caesarean section, high-risk (judged on the basis of observation) infant characteristics, and known prenatal complication subjects. The maternal variables of age, race, parity, educational level and socio-economic status will be systematically studied in relation to infant and mother-infant interaction variables. Specifically, a population of women attending special classes for pregnant teenagers will be compared with the high school population from which they came. Dimensions of emotionality will be studied in particular.

Moss, H. A.

Sex, age, and state as determinants of mother-infant interaction. Merrill-Palmer Quarterly, 1967, 13, 19-36.

A sample of 30 first-born children and their mothers was studied by direct observation; the results described here are based on an eight-hour time-sampled observation at 3 weeks and another at 3 months. Variables selected for study were ones which seemed to influence or reflect aspects of maternal contact, with emphasis on state variables.

Particularly striking was the variability in the infant and maternal variables (e.g. sleep time at 3 weeks ranged from 137-391 minutes and at 3 months from 120-344 minutes); this variability has important implications, in the sense that experiences and abilities based on those variables would then be expected to vary concomitantly. Significant shifts in the

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behavior of both mothers and infants were found. Examples of maternal behaviors with higher 3 week scores are: holds infant close, feeds infant, total holds; some infant behaviors higher at 3 weeks are cries, drowsy, irritable, sleeps. Conversely, behaviors higher at 3 months are: attends infant, affectionate contact, stimulates/arouses, and talks to infant for mothers, and eyes on mother, vocalizes, mouths, etc., for infants. Correlation between the 3-week and 3-month observations indicated the relative instability of the infant-mother system during this period; moderate correlations were obtained only for affectionate-social maternal variables, and for state infant variables (in addition to vocalization). Sex differences in maternal variables (differences in behaviors toward boy and girl infants) were greater at 3 weeks than 3 months, with generally higher mean scores for boys than for girls (e.g. attends infant, stimulates/arouses, stresses musculature), but males slept less and cried more during both observations. When the state of the infant was controlled, most of the sex differences disappeared. The results also indicated that maternal contact and irritability were positively related for girls at both ages; for boys they were unrelated at 3 weeks and by 3 months, mothers tended to spend less time with irritable male babies. The infant's cry is suggested to be the most plausible determinant of maternal behavior in these situations, with a causal sequence hypothesized (consistent with ethological reports of the cry as a releaser). The infant tends initially to control the mother's behavior, but gradually she gains reinforcement value and this control diminishes. Since mothers behaved more contingently toward female infants, it would be expected that females would more easily learn social responses, which in older children seems to be the case. Noncontingent caretaking situations (such as deaf parents, or in institutions) should impede social learning and lead to weaker attachments.

The extent to which maternal responsiveness is related to maternal attitudes was assessed. For 23 mothers, data were available from interviews conducted 2 years prior to the birth of their child. Acceptance of a nurturant role was positively correlated with maternal responsivity at both 3 weeks ($r = .40$, $p < .10$) and 3 months ($r = .48$, $p < .05$), as was the degree the baby is seen in a positive sense ($r = .38$, $p < .10$; $r = .44$, $p < .05$); these two interview variables were highly correlated themselves ($r = .93$) and undoubtedly involved the same dimension.

The role of stimulation in modulating state or arousal level, organizing and directing attention, and facilitating growth and development is discussed. The difficulty in separating learned and unlearned patterns of functioning in this area is noted; it is argued that much of the early social behavior of infants consists of attempts to elicit responses from others, including stimulation. The strength of learned attachment behaviors is suggested to be maximized through stimulation. The state of the infant is thus seen as affecting the quality and quantity of maternal behavior, which in turn seems to influence the course of future social learning.

Moss, H. A., & Robson, K. S.
Maternal influences in early social visual behavior. Child Development, 1968, 39, 401-408.

Mutual visual regard, called vis-à-vis by the authors, is one of the earliest types of communication between mother and infant. It was studied in 54 middle-class mothers and their first-born infants (half males and half females). The mothers' ages ranged from 18 to 34

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years, with a mean of 24½ years. The mothers were interviewed during the last trimester of their pregnancies and rated on several scales. Naturalistic home observations were made at the end of the infant's first (two sessions, with scores averaged) and third (one session) months of life. Each session lasted about six hours. When each infant was 3-1/4 months of age, the amount of time he spent looking at two types of two-dimensional stimuli was assessed. One set of stimuli was geometric (checkerboards of varying complexity) and one set was social (a schematic face, a facial photograph (male), and a symmetrical scrambled collage of the photo). The total fixation (looking) time (TFT) was obtained for each set.

Maternal attitudes during pregnancy were found to be significantly related to mutual visual regard at one month for both sexes, and at three months for girls but not for boys. For girls, three month vis-à-vis scores were strongly related to TFT to social stimuli, and that score was related to the maternal pregnancy rating on Interest in Affectionate Contact with Infants. The actual frequencies of the vis-à-vis scores obtained at three months were comparable for boys and girls, so the fact that maternal ratings ceased to be predictive of vis-à-vis for boys would suggest that other factors become more strongly related to boys' visual interactions with their mothers. The authors find it plausible that mothers would have more complex psychological reactions to infant sons than to infant daughters, in part as a result of greater uncertainty about how to behave toward a boy. There is also some evidence that male infants are more irritable and more vulnerable to adversity than are female infants, and such factors might interact with maternal attitudes, thus necessitating the use of more complex variables to predict maternal behavior with male infants.

Of particular interest is the finding that maternal attitudes predicted maternal behavior toward girls, and that this behavior was related to the social learning of girls as manifested in the visual study. It is more likely that the three-month vis-à-vis interactions are symptomatic (or one indication) of a broader range of maternal attitudes and responses, with this general factor accounting for the results in the visual study, than that the vis-à-vis interaction in particular leads to the differences in the visual test.

The lack of a relation for boys between maternal attitudes and three-month vis-à-vis scores may be an indication that the boys were functioning at an earlier developmental level than the girls. The male infants in this study had significantly longer fixation times than the female infants for both sets of visual test stimuli; Kagan has contended elsewhere that fixation times are related to the match between stimulus and schema, and shorter fixation times reflect greater developmental advancement in establishing a familiar schema for faces. It is noted that this interpretation is consistent with the widely accepted view that male infants mature at a slower rate than females for a wide range of characteristics.

* Unfortunately, visual fixation time data were not obtained for all subjects. Thus, of fifteen correlations for boys, five were based on all 27 subjects, but four were based on 21, five were based on only 18 and one was based on only 17 subjects. For girls, four correlations were based on all 27 subjects, four were based on 21, and seven were based on only 18. Whether data from the excluded subjects would have been comparable is not clear. Lewis and Johnson (1971) have presented evidence indicating that infants eliminated from experiments

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may not be from the same population as those for whom data are obtained, and this is particularly true when the reason for elimination is inattentiveness (as was the case for some of the discarded subjects in this study).

Moss, H. A., Robson, K. S., & Pedersen, F.
Determinants of maternal stimulation of infants and consequences of treatment for later reactions to strangers. Developmental Psychology, 1969, 1, 239-246.

The importance of the quantity and patterning of stimulation to which the human infant is exposed is widely accepted. It is also clear that in her role as primary caretaker, the infant's mother mediates much of the stimulation he receives, either directly or indirectly. Her characteristic tempo of speech and movement and her propensity to maintain a particular stimulation level in the home are examples of indirect ways in which she determines the stimulation received by the infant. This study was conducted to determine whether the stylistic character of the mother, assessed during pregnancy, was associated with the amount and type of stimulation expressed toward the infant during the first 3 months of life, and whether the latter in turn was related to degree of fearfulness of strangers at 8 and 9½ months of age.

The subjects were 54 primiparous mothers and their infants, the same sample described more fully in Moss and Robson (1968). The procedures were also the same, with the following exceptions. The pregnant mother was rated during the interview as a source of stimulation (MSS); this rating was based on the quality of her speech, with higher ratings given for animated, rapid, excited, verbose speech and lower ratings for soft, terse, monotonous speech. The stimulation variables observed when the infant was one month and again when he was three months of age were: mother talks to infant, vigorous tactile stimulation of the infant, gentle tactile stimulation, kisses infant, vigorous burping, gentle burping, jiggles infant, mother rocks in arms, mother rocks in chair, auditory stimulation initiated by mother, and visual stimulation presented to infant. The infant's reaction to strangers was rated at 8 and 9½ months in terms of his response to a stranger's approach (FS) and the degree to which his gaze was averted from the experimenter's face (GA).

The MSS rating was significantly related to one month scores for males on mother talks to infant ($r = .55$), kisses infant (.62), and rocks in rocking chair (.57). These variables seem to reflect a social-affectionate orientation and are behaviors apt to soothe rather than excite the infant. MSS was unrelated to one month scores for girls. At three months, MSS was highly related only to the kissing variables and somewhat less to visual stimulation (.38) for boys; for girls, significant correlations with auditory ($r = .48$) and visual (.60) stimulation were found. Thus stimulation of the distance receptors at three months was much more strongly related to MSS for girls than for boys. Since there is some evidence that female infants develop earlier than males, it may be that mothers rated as expressive monitored the type of stimulation provided to their child so that it would be appropriate to their developmental status, giving male infants stimulation requiring only passive responses and female infants stimulation requiring active attention and processing.

Maternal education was found to be moderately correlated with MSS rating ($r = .38$). Also, less well-educated mothers tended to provide more physical stimulation, a finding of

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interest because of previous results indicating greater skill and interest in motor tasks among lower socio-economic status (SES) groups. Actually, the range of SES for mothers in this study was relatively narrow, with lower-middle class the lowest level represented.

Maternal education and MSS were not related to FS or GA scores. However, the amounts of auditory and visual stimulation received at three months of age were significantly related to FS ($r = -.46$ and $-.33$ for boys and girls combined) and GA ($-.43$ and $-.39$). Thus greater stimulation of the distance receptors at three months was associated with less fear shown to strangers at 8 and $9\frac{1}{2}$ months. The authors suggest that children more accustomed to novel stimulation may be better able to cope with strangeness in the social realm; in other words, they may become more complex cognitively and have more resources for integrating unfamiliar stimuli.

* Another possible explanation of the relationship between stimulation at three months and fear of strangers at nine months is that mothers who provide more stimulation for their infants at three months also do other things which lead to less fear behavior at nine months. The obtained relationship may not be causal in nature.

Pedersen, F. A., & Robson, K. S.
Father participation in infancy. American Journal of Orthopsychiatry, 1969, 39, 466-472.

This study was designed to describe some aspects of father-infant relationships and their range of variation in a middle class sample. The nature of normal mother-infant interaction has been explored fairly extensively, but relatively little is known about normal father-infant interaction (studies of fathers have been focused largely on father's absence vs presence).

The subjects were 21 male and 24 female first-born infants and their middle class families. The fathers were 19 to 40 years of age and their education ranged from eleventh grade to a professional degree; the means were 27 years and three years of college. The data were obtained from home visits made when the infant was 8 months and again when he was $9\frac{1}{2}$ months old. Information about the fathers was obtained by interviewing the mothers (a procedure of some embarrassment to the authors, who point out that distortions were probably minimized for several reasons, including cultural ambiguity about paternal roles). Ratings of paternal behavior on eight variables were obtained. A wide range of father participation in caretaking activities was found, ranging from virtually none (5 of 45 fathers) to engaging in two or more tasks per day (6). The second rating, Investment, reflected positive affective or emotional involvement from an early age. Time Spent in Play was found to range from 45 minutes to 26 hours per week, with a mean of slightly less than 8 hours. Irritability Level reflected the father's reactivity to prolonged fussiness or crying. Apprehension Over Well-Being was the only paternal variable for which there was clearly a sex difference, with fathers of female infants expressing more concern than fathers of males. This may reflect cultural sex-typing (boys should be tough and hardy). Authoritarian Control was a measure of permissiveness-restrictiveness; 11 fathers received the most permissive score and 7 the most restrictive.

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Stimulation Level of Play reflected a gentleness-roughhouse dimension, with almost one-third of the fathers receiving the highest (roughhouse) score, perhaps reflecting a cultural notion of how fathers should play. Overall Availability was an estimate of the average number of the baby's waking hours (per week) that the father was home; the mean was 26 hours and the range was 5 to 47 hours.

Attachment to father was rated for the infant on the basis of the intensity of recent greeting behavior. Caretaking, Investment and Stimulation Level of play were significantly positively related to attachment ratings in boys, and Irritability Level was negatively related. For girls, Apprehension over Well-Being was significantly negatively related to attachment. Thus the factors related to paternal attachment for girls are much less clearcut than for boys; the authors suggest that different attachment systems may be operating.

Three observational measures of infant behavior in a strange situation, and two maternal report measures were also correlated with the eight paternal variables. Of the 40 correlations for each sex, only two were significant for boys (authoritarian control with separation protest, $\bar{r} = .63$; stimulation level of play with reported differential responding to male and female adults, $\bar{r} = .53$) and one for girls (authoritarian control with frequency of sleep disturbance, $\bar{r} = .42$). By chance, two correlations for each sex would be expected to be significant, so these particular relationships must be verified by replication.

Relatively clear attachment to father was seen in about three-quarters of the male infants; they had fathers who were nurturant, actively but patiently involved with the baby, and emotionally invested in his upbringing and development. These fathers behaved in accordance with the conditions postulated by social learning theory to foster (sex-role) identification. The other one-quarter of the male infants lived in situations compatible with a model of defensive or anaclitic identification for sex-role development. Thus there may be more than one avenue of identification for boys; rather than argue the merits of each theory, the authors suggest attempts to define the conditions of applicability for both models.

Rebelsky, F.

Infants' response to mother and stranger at three and a half months. Prepublication draft.

The rate of social response to mother and stranger was studied in nine home-reared infants 13 to 15 weeks of age (two females and seven males). One-half minute of a stranger, leaning over the crib with a non-responsive face, nodding her head and saying "one thousand and one, one thousand and two, one thousand and three, smile" (but not actually smiling) was followed by one-half minute of silence, one-half minute of the mother doing what the stranger did, and another half-minute of silence; this pattern was repeated 3 times. Infant behaviors observed were smiling, head turning, activity, and sounds (cooing, laughing or gurgling, fussing, crying or visceral noise).

The infants were more generally responsive to the stranger than to the mother; they also cooed more to the stranger. Two babies laughed, both only to the stranger. Cooing and smiling

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were significantly correlated ($r = .63$, $p < .05$) but cooing and activity were not. From previous ratings during the first 3 months of life, maternal vocalization and warmth scores were available. They were significantly related to coos to stranger at 3½ months ($r = .67$ for vocalization and .68 for warmth, $p < .05$ for both) but not to coos to mother ($r = .51$ and .48, n.s.).

The data are interpreted as a reflection of interest in a novel stimulus- the stranger. It is pointed out that it is difficult to understand a baby's social behavior without knowing his prior experience, particularly since such behaviors peak at different ages for different groups of infants (e.g. smiling peaks at four months for kibbutz and family infants but at five months for institutional infants). It is suggested that maternal behavior in the first three months is related to infant interest in novelty, which can be represented in social interactions such as cooing to a stranger at 3½ months.

* The explanation of these findings must be considered to be highly speculative, since they are based on so few subjects and on one particular stranger.

Rebelsky, F., & Hanks, C.
Fathers' verbal interaction with infants in the first three months of life. Child Development, 1971, 42, 63-68.

Articles concerned with childrearing practices and parent-child relations seldom mention the father, thereby equating parent with mother and childrearing practices with mothers' childrearing practices. This may be because the United States is a matriocentric childrearing society, or because fathers are less available for study, or because psychologists consider fathers unimportant to childrearing and therefore make no effort to study them. Some studies have indicated that father absence may have important effects, but little is known about normal father-infant interaction. This study was designed to provide basic descriptive data on fathers' verbal interactions with their infants.

The subjects were seven male and three female babies born to middle class families residing in Boston suburbs. Beginning in the second week of life, 24-hour tape recordings (the microphone was attached to the infant's shirt) were made every two weeks for a three month period. Coders who listened to the tapes recorded the duration, time of day, and activity occurring whenever a father vocalized to his infant.

Fathers spent relatively little time interacting with their infants. The mean number of interactions per day was 2.7 (an interaction was considered to have ended if there was a silence of longer than 30 seconds). The mean total interaction was 37.7 seconds per day. Even the father with the most interactions spent an average of only 10 minutes, 26 seconds per day interacting with his infant. The relationship between number of interactions and length of interactions was significant ($r = .72$). Seven of the ten fathers spent less time vocalizing to their infants in the last half of the study than in the first half, and this decrease was more marked for fathers of female infants. Other studies have found that the vocalization time of mothers increases over the first three months. These studies indicate that fathers' vocalization patterns vary differently

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with age than do mothers'. Like mothers, a father's behavior varies with the sex of his infant, but the differential behavior of fathers is opposite to that of mothers. In the first month of life, mothers vocalize more to male infants and fathers to females, but by three months of age the situation has reversed, with fathers vocalizing more to males and mothers more to females. Some tentative hypotheses concerning the reasons behind the differential behavior of fathers toward male and female infants are offered.

While some interesting data concerning patterns of paternal vocalization to infants have been found in this study, other types of interaction were not examined. It may be that fathers are more physical than verbal with their infants, or more physical with their sons and more verbal with their daughters. More information concerning actual patterns of interaction between fathers and their infants is needed.

* In this observational study, fathers spent practically no time at all interacting with their infants. Pedersen and Robson (1969) reported more frequent interactions, but their data were based on maternal report rather than on observation.

Rheingold, H. L., & Eckerman, C. O.
The infant separates himself from his mother. Science, 1970, 168, 78-83.

Infants leave their mothers; this universal behavior is discussed by the authors for class Mammalia. This behavior is biologically important in preserving both the individual and the species, and psychologically important in providing interaction with the environment. The term detachment is used by the authors to provide a balance and contrast with attachment, which occurs earlier in development. It is important to note that the kind of separation under discussion is not what has been referred to as "separation anxiety"; in the case of detachment, the infant separates himself without anxiety. When he leaves his mother, the infant engages in exploratory behavior, which is a major psychological advantage of learning. In our culture, the mother allows the infant to leave her and frequently constructs an environment for her infant in which restraining and/or retrieving him become less necessary.

Studies with primates are reviewed. Measures of separation employed have been frequency (of leaving), distance (away from mother), and time (time spent away, which increases with age). Mothers' responses are also described.

Human studies are reviewed. In one case, three boys and three girls at each six month interval between 12 and 60 months (total = 48 children) were observed. The mother and her child were out of doors on the lawn, and it was possible for the infant to move out of the mother's sight. The distance traveled by the infants was related to age ($p < .01$ for the linear regression). Sex differences were not found (but eight of the ten children who went out of sight were female). In a laboratory study, 24 ten-month-olds were observed in varied settings (the location of mother and infant in the two-room setting, presence or absence of toys, and their placement, varied). All infants left their mothers and entered the new room. How quickly they left, how far they went and how long they stayed were related to the number and location of objects in the rooms and to whether or not the objects were novel. The phenomenon of the infant using his mother as

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a secure base from which to explore was observed.

The authors suggest that the visual properties of both social and nonsocial objects control the infant's leaving his mother and making contact with the objects. The feedback properties of objects determine the nature and extent of manipulation, and therefore, time spent away, and they may also control the child's subsequent return to the objects. The properties of the ambient environment are also important. The psychological advantages of moving away from the mother will be difficult to investigate.

Rheingold, H. L. & Eckerman, C. O.
Fear of the stranger: A critical examination. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

Most child development textbooks point out that in the second half of their first year of life, infants fear strangers. This assumption is questioned in this paper.

The authors had observed in studying 10 to 12 month olds that only the rare baby showed any behavior resembling fear of strangers. They therefore carefully studied 24 normal, home-reared infants, eight each at 8, 10 and 12 months of age, evenly divided by sex. Four tests were combined for a total of 20 minutes in a (strange) laboratory setting. In the first (twelve minute) test, a stranger met the mother and infant in the waiting room (none cried), and sat for ten minutes facing the infant (in a high chair), and playing. Twenty-one of the 24 infants smiled at her; the average number of smiles was 14. They all promptly played with the toys (average delay, fifteen seconds) and did so for an average of seven of the ten minutes; of the 24, 18 did not utter a single protest and 5 did so only briefly.

For the second and third tests, the infant and mother met a second female stranger (no infant cried), and all three went into a large room containing one toy placed near the mother and another near the stranger (who were two meters apart). Again, 21 of the 24 infants smiled at the stranger, with an average latency of 75 seconds. All infants uttered many nondistress vocalizations (mean of 48 times in the five minute period), and only 6 protested, fussed or cried. The infants tended to move away from their mothers; 22 contacted the toy two meters in front of her, and 13 contacted the one in front of the stranger, in an average of 95 seconds. When a single new toy was placed by the stranger, 22 infants contacted it, in an average of 19 seconds.

In the fourth test, the stranger picked up the infant and walked around the room with him for two minutes; 20 of the 24 infants allowed themselves to be held the entire time without protest. After seven infants had been tested, the mother was asked to leave the room following the end of Test 4; 13 of the 17 infants allowed the mother to leave without protest, and did not cry for another two minutes.

In the responses measured, the authors scarcely saw any evidence of fear or anxiety, but saw instead a generally accepting and friendly response.

Several other authors have questioned the universality of the classic fear of strangers

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response. There may be some relationship between the stranger's behavior and the baby's response, which should be classified. Moreover, different investigators describe different responses as evidence of fear (from sober and cautious to slight frown, pout, to whimpering, crying, lip trembling).

The authors argue for qualification of the term "fear" for the infant's response to a stranger, suggesting anxiety or wariness as more appropriate labels. Finally, they suggest that while the ability to discriminate between familiar and novel persons is a milestone in development, fear of novel persons, which may be seldom exhibited, is less clearly a milestone. It may also be a poor index of attachment, particularly in the absence of its display. It seems more theoretically reasonable, in addition, that infants would respond toward people as to other novel stimuli- with curiosity and exploration. Finally, the mother's response to the child's response to a stranger may be worth exploring.

Robson, K. S., Pedersen, F. A., and Moss, H. A.
Developmental observations of diadic gazing in relation to the fear of strangers and social approach behavior. Child Development, 1969, 40, 619-627.

This study was designed to determine the relationship between early mother-infant mutual visual regard and later fear of strangers, and to describe the extent to which an infant's gaze behavior with strangers is a useful measure of his overall readiness to approach or withdraw from social objects.

Mothers (54) aged 18 to 34 years (mean 24.5 years) were interviewed prior to the birth of their first child. When their infants (27 male, 27 female) were one month old, and again at three months, a modified time-sampling technique was used to observe mother-infant interaction in the home. For 20 of the male and 25 of the female infants, two more home observations were made at 8 and 9½ months, and a follow-up telephone interview with the mothers was held at 11 months. These latter observations provided the data on response to strangers. The one and three month observations provided the data on the frequency with which the mother and infant simultaneously looked at each other's faces. In the stranger observations, after two minutes during which the mother held the infant and the two male strangers were seated across the room, one stranger approached the infant, picked him up, held him for almost one minute, gazed (unsmiling) at the eye area of his face, and returned him to his mother. At the end of the interview, the procedure was repeated. Behavorial ratings were made for fear of strangers, the frequency and duration with which the infant looked at the experimenter's face, and the infant's approaches to the strangers during the interview. The first and last measures had reasonable short-term reliability (both intrasession and from the 8 to 9½ month sessions), but correlations for the second measure were only .39 and .45.

Sex differences in age of reported onset of fear of strangers (based on mother interview) were found; for girls it was reported earlier than for boys. Primarily for males, frequency of mother-infant mutual visual regard during the first three months of life was positively related to both gazing at and social approaches to strangers at 8 and 9½ months of age. Maternal interest in affectionate contact with infants, assessed during pregnancy, was positively related to early

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mother-infant gazing for both sexes, and to looking at and social responsiveness toward strangers for males (only) at 8 and 9½ months.

The lack of significant longitudinal relationships for girls may have been due to the ages at which they were observed, if they were more developmentally advanced in general, as suggested by their mothers' reports of age at onset of fear of strangers.

* There are some methodological difficulties in this study. First, all of the observers (and strangers) were male; the sex differences obtained may in some unknown way relate to this fact. Second, magnitude scores for the fear of strangers ratings were not reported, so it is difficult to determine the extent to which subjects displayed such behavior (this is of interest because of some other reports that few infants studied showed fear). Finally, the age of onset data are based on maternal interviews rather than on observation; other studies have shown that maternal reports are in many cases questionable. Certainly the society has differential expectations for girls' and boys' behavior, and it would be important to know the extent to which mothers' reports are influenced by such expectations. It is also possible that maternal expectations actually differentially influence the behavior of boys and girls. Finally, such sex differences may be constitutionally based.

Robson, K. S., & Moss, H. A.
Patterns and determinants of maternal attachment. The Journal of Pediatrics, 1970, 77, 976-985.

While numerous investigators have studied the manifestations of an infant's attachment to his mother, the process whereby the attachment develops is poorly documented.

The mean age of the 54 mothers (half had boys, half girls) was 24 years, ranging from 18 to 34. Mean educational level was 2.7 years of college. All infants were free of major birth defects; 75% were breast-fed an average of 57 days (range 3 to 84 when the study ended). These data are based upon tape recorded interviews of about 1-1/2 hours which took place when the infants were about 3-1/2 months of age. Within the general interview, three specific questions were asked about the onset, course and determinants of the mother's feelings toward her baby: When did she first experience positive feelings of love toward him? When did he first become a person to her? When did he first seem to recognize her?

In analyzing the data, maternal attachment was defined as the extent to which a mother feels that her infant occupies an essential position in her life. In the modal (typical) pattern of maternal attachment, the mother experienced impersonal feelings of affection toward her infant during the first 4 to 6 weeks of his life. She tended then to view him as an anonymous nonsocial object, although she attempted in small ways to achieve a sense of relatedness to him (by putting meaning into his gestures, or trying to find some family resemblance in his appearance). During the first 3 to 4 weeks at home, the mothers reported feeling insecure about handling their babies, and frustrated by their inability to control the infant's fussing, crying, food intake or sleep patterns. The modal mother first felt positive feelings and/or love toward her infant at the third week, and about half the mothers related these early positive feelings to infant responses (smiling,

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eye contact and fixation etc.). Four to six weeks was a transitional period, and the baby was then reported as starting to become a person. Seeing (visual fixation, following), smiling, laughing, eye contact, and unspecified "responsiveness" accounted for 72% of clearly articulated feelings concerning perception of the infant as a person. At around 7 to 9 weeks infants began to be recognized as specific individuals, and by the end of the third month the modal mother felt strongly attached; the infant's absence was unpleasant and his imagined loss was an intolerable prospect.

Some atypical maternal attachment patterns were observed. Seven mothers were grouped as early attachers; they experienced immediate, intense attachment, and this was relatively unaffected by the baby's behavior. Five of these mothers very badly wanted a baby (one had tried for five years, one was a lonely, anxious person who described a selfish feeling that the infant was all hers), and two were unusually calm, competent, secure women. Nine mothers were classified as late attachers; six of these simply did not want their babies, and were either detached and unreactive, or anxious insecure people. All eventually developed a meaningful attachment.

The results are interpreted in an ethological framework. In subhuman mammals, maternal attachments primarily involve fulfillment of physical needs, and maternal behavior tends to be released by species- specific infantile characteristics. The obtained data suggest that the release of human maternal feelings seems to depend heavily on the infant's capacity to exhibit behaviors that characterize adult forms of communication. During the first month, infantile characteristics (e.g. helplessness) are most relevant to the early indiscriminate phase of attachment; the later intense feelings seemed to depend on adultlike behaviors (e.g. smiling). This combination of adultlike and infantile characteristics may provide more powerful external incentives than either alone (blind babies can, for example, elicit intense anger in their mothers). In animals, particular behaviors in the young suppress aggression in the parents (hens peck to death turkey chicks who do not peep, for example). Lorenz has suggested that the human smiling response is a ritualized behavior that serves to inhibit aggression. This might explain its apparent role in the development of parental attachment.

* It would be interesting to know if the variations in maternal attachment were in any way age-related, since some of the mothers were quite young.

Seashore, M. J., Leifer, A. D., Barnett, C. R., & Leiderman, P. H.
The effects of denial of early mother-infant interaction on maternal self-confidence. Prepublication draft, 1971.

This study was addressed to the question of how the human mother is affected by separation from her infant; specifically, how separation from her prematurely born infant during the first few weeks of his life affects her confidence in her ability to care for her infant. Prematurity itself may influence maternal self-confidence, and related to this presumed biological failure is the perceived or actual physical condition of the premature infant at birth; his appearance gives a mother little reassurance that everything will go smoothly. The self-confidence of primiparous mothers would be expected to be more seriously affected by the separation experience than that of a multiparous mother.

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The study included mothers with no previous history of premature or low weight births, whose infants weighed from 890 to 1899 grams (2.0 to 4.2 pounds), were free from obvious congenital abnormalities and were not a multiple birth, and whose husbands were present in the home. Mothers were randomly assigned to treatment groups; 21 (the separation group) were able to view the infants from the nursery window during the three to twelve weeks they were in the intensive care nursery but had no other contact, and 22 (the contact group) could enter the nursery and handle, diaper and feed their infants. Mothers in both groups were permitted to care for their infants when they reached a weight of 2100 grams (4.6 pounds) and had been placed in a discharge nursery for seven to ten days before leaving the hospital.

Confidence was measured: 1) after the mother first saw her baby in the nursery (24-48 hours after birth), 2) after the mother first visited and cared for her infant in the discharge nursery, 3) the day before the infant was discharged, and 4) one month after the infant's discharge. Each time, the mother compared herself with other caretakers (father, grandmother, experienced mother, pediatric nurse, and doctor) for each of three social (e.g., calming) and three instrumental (e.g., diapering) tasks. Mothers were also observed caring for their infants at three intervals.

The results indicated that the separation experience had little effect on the confidence of multiparous mothers, but the confidence of primiparous mothers in the separation group was significantly lower than that of the mothers in the contact group at the second and third testing. This result was a reflection of mothers who were initially particularly low in self-confidence. Significantly, those mothers in the contact rather than in the separation group moved from low to high self-confidence across the tests. The observation data indicated that although primiparous mothers in the separation group felt less confident than did other mothers, they were not observably less skillful. Self-confidence was also not related to the infant's sex, birthweight, or physical condition during hospitalization, to mother's reaction to learning she was pregnant, or to an index of neuroticism.

The authors suggest that physiologically, contact with the newborn infant may be an important stimulus to (undetermined) hormonal states, while psychologically, contact may provide important reinforcement and learning experiences. They note that the ramifications of the study for unwed mothers cannot be determined, since all of the mothers in the sample were married. Moreover, most were of higher social class status than the majority of mothers of premature infants. It may be that separation effects would be even greater for mothers who receive less support in such crises.

Stayton, D. J., Hogan, R., & Ainsworth, M. D. S.
Infant obedience and maternal behavior: The origins of socialization reconsidered. Child Development, 1971, 42, 1057-1069.

The hypothesis tested was that an infant whose mother is accepting, cooperative, and sensitive to signals will be more obedient than one whose mother is rejecting, interfering and insensitive, and this tendency to comply will be independent of specific socialization tactics or disciplinary practices. In effect, the authors argue that children are primarily social and disposed toward obedience; this ethological-evolutionary view contrasts with the social learning

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theory and psychoanalytic viewpoints which assume a fundamental antagonism between a child and his society. Both such learning and identification models imply that normally socialized children become so only as a result of specific intervention tactics designed to foster social learning or identification.

The data reported are based on narrative reports of home observations and interview material obtained for mother-infant pairs (15 boys, 10 girls) from white middle-class families.

Maternal variables were three 9-point scales devised to assess the degree of harmony in mother-infant interaction (sensitivity-insensitivity, acceptance-rejection, and cooperation-interference) and three specific maternal behaviors coded to assess the extent to which the mother tried to train, discipline and/or control the baby's behavior (frequency of verbal commands, in mean number per visit; frequency of physical intervention, in mean number per visit; and floor freedom, scored two if baby was given floor freedom during most of his waking hours and one if he was mostly confined). The infant variables were sex, IQ (Griffiths Scale of Mental Development), compliance to commands (as a percentage of verbal commands issued) and internalized controls (scored three, two, or one according to whether self-inhibition was demonstrated clearly, ambiguous, or never observed).

The results supported the hypothesis. The infant's compliance to commands was strongly related to all three harmony indices (r = .63, .67, .62) but not to the two maternal discipline measures (r = -.22, .09). The infant's use of internalized controls was unrelated to compliance, but positively related to IQ, floor freedom, and to the three harmony indices. Factor analysis of the correlation matrix resulted in three factors which accounted for 75% of the variance. The first, accounting for 42% of the variance, related maternal behaviors promoting mother-infant harmony to the infant's compliance to commands, and to a lesser extent, internalized controls and IQ. The second factor, accounting for 18% variance, was defined by amount of floor freedom, frequency of the mother's physical interventions, and IQ, indicating that freedom to explore may facilitate intellectual development. The third factor, accounting for 15% of the variance, was defined by verbal commands, physical intervention, and sex of the infant. While this factor suggests that mothers may be more controlling of sons, the authors caution that sex may be confounded with birth order, since six of the fifteen boys but none of the girls were first-born. When compliance with commands was made the criterion variable in a stepwise regression analysis, the maternal variable of acceptance-rejection was the first to be selected (R^2 = .455); none of the other measures significantly increased prediction.

The authors argue that these results support an ethological-evolutionary model of early social development, whereby an infant is initially inclined to be social and is then later ready to obey those persons who are most significant in his social environment. Attachment ensures a certain degree of infant-mother proximity and thus provides a safeguard against the dangers of exploratory behavior. Obedience and locomotion develop at about the same time as attachments form. There is little evidence in the ethological literature that obedience is achieved through training or specific reinforcement schedules; rather, the affectional tie itself seems to foster a willingness to comply with parental signals. The findings of this study suggest that infants with the most harmonious relations with their mothers are the most readily compliant, arguing against the psychoanalytic theory of fear of loss of love.

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Stern, G. G., Caldwell, B. M., Hersher, L., Lipton, E. L., & Richmond, J. B. A factor analytic study of the mother-infant dyad. Child Development, 1969, 40, 163-181.

Noting the consistency that has emerged from factor analyses of the dimensions of parent behavior, the authors question the directionality of influence -- the general assumption seems to be that patterns of parent behavior will exert influence on and give shape to emerging child behavior. This study involved the extraction of common factors from a matrix of correlations among maternal personality characteristics, maternal behavior characteristics, and infant personality and behavior characteristics.

The subjects were 30 mother-child pairs, described as a volunteer group of young families (22% of the mothers were aged 20-24 years) of limited educational and financial resources. Data were ratings based on mother interviews, observations of both mother and infant, and developmental test performance of the infant, obtained when the infant was close to one year of age.

A matrix of 79 variables consisted of 23 maternal needs, 27 maternal behaviors, 19 infant needs, 8 infant behaviors, infant MA and infant IQ. The matrix of correlations was factor analysed using an iterative principal axis procedure and equamax rotation.

Nine orthogonal rotated factors accounted for 68.8 per cent of the variance. The factor axes were somewhat intercorrelated. There were no factors specific to either mothers or infants alone, confirming the expectation of an interaction. The factors obtained for maternal needs, maternal behavior, and infant needs and behavior are discussed individually. A synthesis of the mother-child composite factors was developed by extrapolating from the separate analyses, and resulted in an apparent continuum of interaction health. The first two composite factors, involved mothers with accelerated infants, and symbiotic mother-child affective rapport, appeared to represent two similar variants of effective mothers and responsive infants. The next four factors, parallel active social and achievement orientation, maternal display behavior with infant sensuality, slow infants with solicitous and concerned mothers, and mutual maintenance of distance with accelerated infant development and drive, describe less child-centered motivation that is nevertheless coupled with able maternal care and positive growth patterns. The next two factors, unwarranted maternal satisfaction with disorganized interaction, and maternal self-criticism reinforced by demanding and hostile infant behavior, seem clearly pathogenic. The last factor, exhibitionistic indulgence with happy child response, bears little statistical relationship to the others; it is somewhat similar to the first but the mothers are not quite as child-oriented and the babies' responses are less positive.

The authors interpret the results as suggestive of a causal sequence of relationships between the personality characteristics of the mother, the modes of maternal behavior she adopts, and the responses and development of her infant. The case for psychosocial determinism that is quite specific regarding the instrumental qualities and consequences of the mother's behavior is said to be supported.

* Since the data describe the mother-infant relationship at one point in time only and after one year of existence, the directionality of the data is not as obvious as the authors contend.

00070

Tennes, K. H., & Lampl, E. E.
Some aspects of mother-child relationship pertaining to infantile separation anxiety. The Journal of Nervous and Mental Disease, 1966 143, 426-437.

The authors studied separation anxiety within a psychoanalytic context. Specifically, they investigated the contribution of the instinctual drives, both libidinal (sexual) and aggressive, to the intensity of infantile separation anxiety as determined by fear of object (mother or mother surrogate) loss.

The subjects were 13 boys and 14 girls who were studied longitudinally. Home and laboratory observations were made at monthly intervals from four months to two years of age. Written observational reports were used to make ratings on eight variables: 1) the child's libidinal investment in the mother, 2) the mother's libidinal investment in the child, 3) motor expressions of aggression through the use of the inanimate, 4) anger, specifically at the mother, 5) manifestations of hostility in the mother toward the child, 6) the mother's inhibition of aggression in the child, and 7) separation anxiety.

The longitudinal observations indicated that the mode and median time of onset of separation anxiety was around eight months, with a mean of 9.3 months (range from 4 to 18 months). All infants had developed libidinal attachment to the mother before one year, and 21 had done so by six months of age. Motor expressions of aggression onto the inanimate and expressions of angry affect had a mean time of onset of seven months. Correlational analyses showed that separation anxiety was significantly positively correlated only with child's libido, mother's libido, and mother's inhibition of aggression. Children with moderately hostile mothers had significantly higher separation anxiety scores than those with either the most hostile or least hostile mothers.

The level of libidinal investment of both partners had no predictive value for the intensity of infantile separation anxiety. The authors therefore concluded that the infant's libidinal investment in the mother is a necessary but not sufficient condition for the manifestation of fear of object loss. Ainsworth and Wittig's conclusion that measures of separation anxiety cannot be used as the sole criterion of the child's attachment to the mother is thus supported. The best predictors of the intensity of infantile separation anxiety were the mother's inhibition of the child's aggression and the mother's hostility toward the child.

* In essence, the major finding of this study is that infants exhibit positive behaviors toward their mothers before they exhibit distress at their mother's leaving, and all infants exhibit the former but not the latter. The extent to which positive behavior toward one's mother actually reflects libidinal investment remains unknown. The authors provide examples of observations on which ratings were based; they tend more toward clinical impressions than toward descriptions of behavior. While interrater reliability is reported and is sufficiently high, interobserver reliability is not reported.

00071

Turnure, C.

Response to voice of mother and stranger by babies in the first year. Developmental Psychology, 1971, 4, 182-190.

Infants' responses to their mother's voice, to systematic distortions of that voice, and to a stranger's voice were studied. Systematic distortions of mother's voice were included to provide information about the nature of an infant's schema of his mother (the sort of perceptual-cognitive model he has constructed). Infant's reactions to verbal stimuli have been studied very little, perhaps because of the difficulty of choice of response measure (nothing comparable to visual fixation is available).

The subjects were six boys and five girls at each of three ages: 3, 6 and 9 months. The speed of the tapes was changed to produce slightly and grossly distorted versions of mothers' voices, which were presented in addition to her normal voice. Eight potential subjects were not observed (six cried and two went to sleep). The baby was photographed (one frame per second) while the recordings were played, and an observer recorded the subject's smiling, frowning, mouthing, vocalizing, crying, and limb-mouth contact. The photographs were scored for limb movement.

At three months the girls showed more absolute limb movement than boys during the slight distortion of the mother's voice, and the girls were also more active than the boys during gross distortion. At nine months, the girls were more active than the boys during the mother's normal voice. When changes in movement were analyzed it was found that the nine month olds quieted more to the stimuli than did either the six or three month olds. Analysis of the observational data revealed: more frowning during all the stimuli at three than at six months, more crying during all the stimuli at six than at three months, more crying during the mother's voice at six months than at three months, more mouthing during all the stimuli at three than at six months, and more vocalizing during the slight distortion stimulus at three than at six months. Some of these age differences resulted from baseline differences.

For some of the subjects, additional stimuli (two ordered frequency distortions of the mother's voice, and the voice of an unfamiliar woman) were presented to determine whether any results of the main experiment were dependent upon the particular type of distortion that had been used. The results indicated that nine month olds quieted more than either the six month olds or three month olds, and the six month olds quieted more than the three month olds to the unfamiliar voice. When responses to mother's and stranger's voices were compared, the only significant difference was more mouthing to the mother's voice at three months.

Greater motor quieting with age was found for all versions of the mother's voice as well as the stranger's voice, indicating that the infants were increasingly attentive to the verbal stimuli with age. The distorted versions of the mother's voice did not result in any systematic effects. In both stimulus sequences, more crying was observed in six month olds than three month olds, especially during the mother's voice. This is interpreted as evidence of the growth of attachment, in this case a protest (form of separation protest) at hearing the mother's voice but not seeing her. The crying of the six month olds may indicate that the infant's responses were usually contingent on the presence of more of the mother's attributes than her voice. Differential mouthing to the voice of the mother and stranger was observed at three months but not later, a

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somewhat surprising finding (differentiation of the mother from other adults would be expected to continue following its appearance), but a similar finding for smiling has been reported elsewhere.

van der Walde, P. H., Meeks, D., Grunebaum, H. U., & Weiss, J. L.
Joint admission of mothers and children to a state hospital. Archives of General Psychiatry, 1968, 18, 706-711.

This paper describes the experiences and difficulties involved in instituting a joint admission program for disturbed post-partum mothers and their infants at a state mental hospital. This hospital provides little individual therapy; the milieu itself and drugs constitute the treatment program. The experience with such a program at a small, well-staffed teaching hospital which provides considerable individual therapy has been described in Grunebaum, Weiss, Cohler, Gallant, & Hartman.

The reactions of the hospital administration, nursing staff, physicians, patients, mothers and relatives are described. Generally, problems derived from feelings of anxiety and resistance to the change in established structure. The program seemed to be successful. No data concerning the effects on the infants and children are provided.

Wahler, R. G.
Infant social development: Some experimental analyses of an infant-mother interaction during the first year of life. Journal of Experimental Child Psychology, 1969, 7, 101-114.

This longitudinal study of one male child (beginning at three weeks and continuing for about one year) was designed as an experimental analysis of early social behavior within a reinforcement theory model. In particular the author was interested in the emergence of social behaviors (not just their maintenance through reinforcement, as with smiling, babbling, etc.) and whether or not there is a response hierarchy relating earlier to later social behaviors.

The dependent variables (infant behaviors) chosen for measurement were exclusively verbal responses. Adult social behaviors chosen as reinforcers were physical contact with the infant, talking to him, and smiling. Once a week, during the morning, 25-minute sessions took place in the child's home. (During the first five minutes the mother played with the infant as she wished except that she could not pick him up, and two observers made a written record of the infant's verbal behavior, which was then classified based on topographic similarities among his responses.) In this way response classes were established, and the frequency of these classes was recorded during the next 20 minutes, along with maternal social attention that was contingent upon any of the classes. During baseline sessions, the frequency of new and old classes was noted. During experimental sessions (scheduled when new response classes appeared) the mother was told to ignore all occurrences of the new class.

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Four pairs of sounds were compared. In each case, an emerging new type of sound was ignored for three sessions in the expectation that the previously less frequent (presumably lower in the response hierarchy) sound would increase and the ignored sound would decrease, and sessions then resumed. The expected pattern was found for babbling-cooing vs. glottal sounds (former new, latter old), coughing-gasping vs. squealing, and ba-ba vs. mmm, but did not hold for laughing vs. grunting. However, in spite of the mother's continued social attention to all sounds, all classes declined in frequency and some disappeared. The author speculated that nonverbal behaviors may have been increasing during that time and found that hand-reaching did so.

* The author contended that the mother's social attention was at least partly responsible for the control of various classes of his verbal behavior, and that some such classes were functionally related to other classes. However, during baseline sessions, the mother provided attention continuously for all infant classes, so the emergence of new classes could not have been related to her selective reinforcement. Moreover, only her contingent responses were recorded, under the assumption that others were unimportant. Finally, only one subject was studied in a somewhat artificial setting so it is difficult to say what such results mean for development.

Wenar, C.
Executive competence and spontaneous social behavior in one-year-olds. Child Development, 1972, 43, 256-260.

The author studied the relationship between the one-year-old's executive competence in his transactions with the physical environment and his spontaneous social behavior with his mother. Executive competence is defined as the child's ability to initiate and sustain locomotion, manipulative and visually regarding activities at a given level of complexity and intensity, and with a given degree of self-sufficiency.

The subjects were 16 boys and 10 girls, and their mothers. Home observations were made when the children were 11, 12, or 13 months old (one was 15 months). About four or five hours of observational data were obtained, from which three 15-minute intervals were selected (intervals free of child-care activities and distractions). A complex scoring system was used to obtain measures of duration, intensity, and level of executive competence, kind and intensity of affect, and kind, duration and intensity of spontaneous social response. These were combined into several overall ratings.

Briefly, the results indicated that the children chose transactions with the physical environment over social overtures to their mothers to a highly significant degree. Also, the spontaneous social overtures of these one-year-olds to their mothers were more frequently accompanied by affect than were their explorations of the physical environment. The author suggests that social and physical learning take place in quite different affective contexts, and that affect may help children distinguish inanimate from social objects. Level of executive competence and total number, intensity, and duration of spontaneous social overtures were not

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related. The evidence did not support an expectation that the one-year-old will be either task and object oriented or social and attachment oriented; a diversity of relationships to objects and to the mother was found.

Yarrow, L. J.
The development of focused relationships during infancy. Exceptional Infant, 1967, 1, 429-442.

The author points out that a focalized individual relationship with the mother or major caretaker does not appear suddenly, full-blown, but develops gradually through many stages. Therefore, he argues, it is important to assess the many behaviors which are reflections of this development, rather than to discuss only one or two. He presents some data which indicate that individual differences in this area are wide.

The similarities and differences among psychoanalytic theory's "object relationship" (a broad, clearly developmental concept), social learning theory's "dependency" (an acquired or secondary drive, not usually used in reference to infants), and Bowlby's "attachment behavior" (composed of the instinctual responses of crying, sucking, clinging, following and smiling) are discussed. The author notes that stranger and separation anxiety have been the criteria most commonly used to define these concepts, and argues that rather than assuming a fixed point at which a relationship appears (an arbitrary designation), normative data on the stages of development of relationships be studied.

Normative data based on home observations of infants adopted during the course of the study are reported for a maximum of 60 and minimum of 40 subjects in any one age group. Comparisons were made between the infants' responses to animate and inanimate stimuli, to familiar and unfamiliar social stimuli, and to neutral and unfriendly affect. Latency, duration and intensity of activity change, approach/withdrawal, facial expression change, and vocalization change measures were obtained.

Five steps in the development of object relationships were observed. First was the appearance of social awareness, exhibited in the capacity to discriminate social from non-social objects by 65% of the infants at one month of age, and in almost all by five months. Next was selective responsiveness to familiar and unfamiliar people, seen first in recognition of the mother (by one month, 38%; five months, 100%), and later in active preference for the mother over strangers (peak of 66% at five months). The highest level of object relationship, the confidence relationship, was manifested first by an indication that the infant expects soothing when in distress (found in about half of the infants at three months) and later in a capacity to wait for gratification from the mother (only a relatively small number, 31%, reached this highest level of confidence relationship by eight months, indicating the influence of environmental and idiosyncratic factors). The first negative aspect of differentiation of the mother is stranger anxiety, with about 40% of infants showing differentiated response to strangers by three months and 71% by five months. Only a small proportion of infants ever showed moderate to strong anxiety, and the highest incidence of even mild anxiety was 46% at eight months,

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suggesting that the "eight month anxiety" phenomenon is far from ubiquitous. Finally, the data indicated that marked disturbance to temporary separations (separation anxiety) occurs in only about 10% of infants, but reactions to permanent separation (in this case, when adopted) is increasingly severe with increasing age (only 10% are markedly disturbed at three months but all are at eight months).

Secondary reinforcement theory versus direct reinforcement is discussed as an explanation of the development of focused relationships, and the question of the significance of any modality (e.g., oral) is mentioned. The implication for maternal care practices is raised (e.g., is it crucial that a specially cathected or emotionally significant person care for the infant or is appropriate stimulation significant).

* The extent to which the normative data reported in this study are truly normative is unclear; the caretaker of the infants studied is not specified. Even if it was the child's mother, the child was subsequently given up for adoption, which is not the norm.

Yarrow, L. J., Rubenstein, J. L., & Pedersen, F. A.
Dimensions of early stimulation: Differential effects on infant development. Papers presented in a symposium at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

The major objectives of this study were to differentiate the natural environment by analyzing both the caretaker's behavior and inanimate proximal stimuli in the infant's environment, and to determine whether perceptual-sensory stimulation on the one hand and social stimulation on the other are related to different facets of the infant's development. The separate dimensions of perceptual-sensory variables identified were variety, complexity, and responsiveness; for social stimulation, they were level, variety, and the expression of positive affect.

While the effects of extreme environments have received considerable research attention, the impact of less extreme variations in experiences, within the normal range, are less clear. Moreover, intervention programs have been aimed at alleviating the effects of deprived environments without detailed knowledge of their characteristics. Accordingly, some five to six month old black infants from disadvantaged environments and a smaller number of middle class background were observed at home with their caretaker for about six hours. (It is interesting to note that of the 70 infants recruited there was a stable primary caretaker for only 21 boys and 20 girls; the others had substitute caretaker arrangements involving several changes over time or several people at one time.) During each 30-second interval, 60 categories of events were monitored, providing a general taxonomy description of social and inanimate environmental stimuli. The Bayley Tests of Infant Development and a structured situational test were dependent variable measures; the Bayley items were regrouped into clusters in addition to obtaining the mental and motor index scores.

The social environment data indicated that maternal responsiveness is not a general trait but is somewhat more specific to different signals from the baby and different ways of defining

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contingency. Level, variety, and positive affect of social stimulation were all strongly interrelated. When related to infant functioning, the essence of variety in social stimulation seems to be the encouragement of more differentiated responses, while level is probably limited to arousal functions. Contingent response to distress, conceptualized as an index of soothing stimuli, was significantly related to Bayley mental scores and to the set of goal-directed behavior measures. This would suggest an optimization effect for the state of the infant, and would support the Ainsworth and Lewis interpretation that relatively quick response to infant distress has a general facilitating effect on development (and would argue against the reinforcement interpretation of Gewirtz). A measure of amount of infant vocalization was significantly related to contingency of mother's response to vocalization, providing naturalistic data support for social reinforcement of vocalization experimental data. Moreover, this result was quite specific (for example, mothers' spontaneous, non-contingent vocalizations were unrelated to amount of infant vocalization). The strongest grouping of significant relationships was for the cognitive-motivational set of Bayley items called goal directed behaviors. Reaching and grasping had weaker relationships, and secondary circular reaction (the repetition of behavior which produces interesting results) was not strongly related. These three variables may define behaviors known as early competence, intrinsic motivation, generalized expectancy model, or contingency awareness; in other words, an active, information processing organism that initiates transactions with the environment and in turn is influenced by the transactions.

A differentiated analysis of the infant's inanimate environment was made in terms of the variety, responsiveness, and complexity of his play objects, combined into an average score. These dimensions were largely independent of social stimulation, which suggests that it is an oversimplification to characterize an environment as depriving or overstimulating. The properties of the inanimate environment appeared to have specific effects, mostly on cognitive-motivational and fine motor variables, and not so much on language or social development. The results indicated that it is the variety of objects with which the baby comes in contact, rather than complexity or feedback potential, that relates to the development of object permanence. Responsiveness was most related to secondary circular reactions; stimulation contingent upon reaching, grasping, visual exploration and tactile manipulation appears to lead to further such behavior. Complexity was related to stimulus receptivity, but not to mental score, goal orientation, or problem solving.

On the whole, correlations were higher for girls than for boys.

These results indicate that for this population, social and inanimate stimulation are largely unrelated. One striking outcome is the extent to which motivational functions such as exploratory behavior and goal orientation seem to be amenable to environmental influence in early infancy.

* This study raised two questions about children cared for by multiple caretakers. Twenty-nine such children were eliminated as subjects for this particular study. First, have such children been routinely excluded from other studies? If so, norms and generalizations do not represent them. Second, if they have not been excluded, in what ways are they different from infants cared for primarily by one person? These issues have not been addressed in the literature.

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III CHILDREARING PATTERNS

Baumrind, D.

Child care practices anteceding three patterns of preschool behavior. Genetic Psychology Monographs, 1965, 75, 43-88.

This monograph describes a systematic study of childrearing practices associated with competence in young children. It is based on the assumption that the physical, cognitive and social development of middle-class preschool children in America is largely a function of parental childrearing practices.

Thirty-two three- and four-year-olds were selected from 110 children on the basis of their ratings (based on observation) on self-control, approach-avoidance tendency, self-reliance, subjective mood and peer affiliation. Multiple assessment resulted in three groups of children with clear-cut stable patterns of interpersonal attributes. Based on two home visits, focused interviews and structured observations, the parent dimensions of parent control, parent maturity demands, parent-child communication, and parental nurturance were measured.

Children studies included 13 who were self-reliant, self-controlled, approach-oriented, and buoyant, 11 who were dysphoric and disaffiliated, and 8 who were immature. The results indicated that parents of the most competent and mature boys and girls were notably firm, loving, demanding, and understanding. Parents of dysphoric and disaffiliative children were firm, punitive and unaffectionate. Mothers of dependent, immature children lacked control and were moderately loving; fathers of these children were ambivalent and lax.

The author notes that control and restriction appear to be different dimensions of parental practice and have contrasting effects on self-assertiveness and self-reliance in young children. Becker found that warm restrictive parents tend to have dependent, well-socialized submissive children, but in the present study children's spontaneity, warmth and zest were not affected adversely by high parental control.

* Some methodological shortcomings of this study are that the groups on which the findings of this study are based were small, and dealt with 3 and 4 year olds whose behavior may have determined to some extent their parents' practices.

00079

Baumrind, D.
Socialization and instrumental competence in young children. Young Children, 1970, 26, 104-119.

The author reviews her work and that of others relating patterns of parental authority (and behavior) to the development of instrumental competence in their children. Patterns of authority are held to be more important than single parental variables.

Three basic patterns (from the author's 1967 monograph) are described: Authoritative, Authoritarian, and Permissive, as well as subpatterns (e.g. Rejecting or Not Rejecting) within each, are described and related to the development of social responsibility in young children. The author holds that instrumental competence has important survival value in the U.S. society, but that expressive competence does not substitute for it.

The difficulties associated with the development of instrumental competence in girls in a society (most) which socializes girls to be instrumentally incompetent are noted.

* This article provides a fairly comprehensive review of research relating parental authority patterns to the development of competence in children (achievement motivation, etc.).

Baumrind, D.
Harmonious parents and their preschool children. Developmental Psychology, 1971, 4, 99-102.

In a study of current patterns of parental authority and their effects on the behavior of preschool children, the author found eight families who came to be described as harmonious. Observers (3 months in the nursery school and in a structured situation, 2 home visits of three hours each and a structured interview with the mother and the father) would not rate these families as either high or low on items measuring a cluster designated "firm enforcement." They insisted that scores would be misleading because these parents had control but did not exercise control.

The six daughters whose parents were harmonious were outstandingly competent (average Stanford-Binet IQ score = 136; on a Behavior Q sort they were achievement oriented, friendly, and independent). The two boys, however, were notably submissive, aimless, not achievement-oriented and dependent.

Excerpts from a mother interview are reported. The author urges caution in considering the findings because of the small sample.

00080

Caldwell, B. M. & Richmond, J. B.

Social class level and stimulation potential of the home. Exceptional Infant: The Normal Infant, 1967, 1, 455-466.

It is argued that social class can at best be only a descriptive variable, not an explanatory one, although it is often used in that way, particularly with regard to parental childrearing practices. Furthermore, when class differences have been found, it frequently tends to be forgotten that they imply only that a given behavior is typical of different proportions of different classes (e.g. the conclusion that more middle-class parents are permissive may be warranted, but the conclusion that middle-class parents are more permissive is not).

Research is needed which would suggest differences in both parents and children (not just one or the other) that would bear a theoretical causal relationship. A study by Williams & Scott is cited. They found apparent social class differences in motor development scores of Negro infants, favoring the lower-class infants. They also found differences in childrearing practices in the direction of greater permissiveness in lower-class families. When families were separated according to permissiveness, greater differences in motor scores were found than when they were separated by class, indicating that in this case, social class was a redundant variable.

Another research need is for information about the extremes of the social continuum; the authors could find no study of upper class childrearing practices. One study of urban slum Negro families indicated that the environment was extremely disorganized, with childrearing practices selected by convenience rather than philosophy.

Further information about intra-class differences is needed. What there is suggests that such differences are great, with inter-class differences minimal by comparison.

Some preliminary data from a longitudinal study of 6 to 36 month-old infants are presented. One control group (test only) and two experimental groups (parent education versus center day care) are being compared at six month intervals, with their scores examined in relation to six environmental variables. For twenty-eight infants at 12 months, affective aspects of maternal behavior were unrelated to performance. But when some (15) of the same children were tested at 18 and 24 months to determine developmental level, the relationship between their performance and previous maternal affective behavior at 12 months was significant. The authors caution against causality inferences from this data. Parental concern with fostering good child development was also related to infant performance at 18 and 24 months but minimally related at 12 months. Maternal concern with order was particularly highly related to developmental level at 18 months ($r = > .70$). These data must be viewed as preliminary because of the small numbers of subjects involved.

00081

Cohler, B. J., Grunebaum, H., Weiss, J. L., & Moran, D. L.
The childcare attitudes of two generations of mothers. Merrill-Palmer Quarterly, 1971, 17, 3-17.

Using their Maternal Attitude Scale, the authors studied the childcare attitudes of mothers (20-40 years) and their mothers (grandmothers; 57-75 years), and of mothers matched with the former group but who did not volunteer along with their own mothers. Five child-rearing factors were examined.

Significant intergenerational correlations were obtained for appropriate vs inappropriate control of aggression ($r = .370$), encouragement vs discouragement of reciprocity ($r = .306$), and feeling of competence vs lack of competence in perceiving and meeting the baby's needs ($r = .295$). Statistical tests indicated that grandmothers' attitudes were significantly less adaptive than mothers' regarding appropriate control, encouragement of reciprocity, and appropriate closeness with the child, but more adaptive concerning competence in meeting the baby's needs. These differences are interpreted in relation to societal trends in child-rearing practice.

Mothers who volunteered along with their own mothers expressed less concern than their peers who did not volunteer along with their mothers about their ability to control their children's anger, but felt less able to take independent action and expressed more conventional stereotyped attitudes in childcare.

Mothers 20 to 30 years of age were not different on any factor from mothers 31 to 40, but grandmothers older than sixty indicated particularly maladaptive attitudes re: appropriate control and appropriate closeness and more adaptive attitudes re: acceptance of emotional complexity than grandmothers aged 51 to 60.

Mothers and grandmothers who shared a common residence displayed more maladaptive attitudes re: appropriate closeness than those who did not, and on the other four factors, mothers living with their own mothers indicated less adaptive attitudes than those living apart (in each case, the differences were not statistically significant, but the sign test for the pattern was significant ($p < .03$).

Cohler, B. J., Weiss, J. L., & Grunebaum, H.
Childcare attitudes and emotional disturbance among mothers of young children. Genetic Psychology Monographs, 1970, 80, 3-47.

This study, based on the psychoanalytic concepts of epigenesis and adaptation, takes the perspective that motherhood may be viewed as a series of developmental tasks, each a crisis that must be solved adaptively for further maturation to take place.

Based on the issues to be negotiated between mother and child during the course of the child's development, a 233 item (Likert-type) Maternal Attitude Scale was constructed

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in accordance with the issues suggested by Sanders to be negotiated in sequence. A detailed description of the development of this scale is provided.

The scale was administered to samples of hospitalized and nonhospitalized mothers; the latter were recruited with advertisements. The hospitalized mothers felt much less able to establish a reciprocal relationship with their child than outside mothers. They tended to view the child as a separate being who was passive and unable to communicate or achieve reciprocity with his mother. Also, they seemed unable to acknowledge the complex and ambivalent feelings associated with motherhood; they tended to respond in accordance with what they believed to be typical feelings (further their view of "typical" was inaccurate, as evidenced by the responses of the nonhospitalized sample).

The results also indicated that the type of mental illness typically described as the "postpartum syndrome" should be re-examined. In this study there was no evidence that the risk of admission was greater in the three months following delivery than for any period up to three years of age. Also, the differences in attitudes within the group of hospitalized mothers were greater than the differences between hospitalized and nonhospitalized mothers, indicating that the concept of a unitary syndrome is inappropriate. The results did indicate a relationship between the issue over which the maternal breakdown occurred and the mother's attitude regarding the issue, for example, how to handle an older child in the family, or general family conflict.

Burton, R. V.
The interpretation of intergenerational attitudes. Merrill-Palmer Quarterly, 1971, 17, 61-62.

The author advised caution in interpreting the results obtained by Cohler, Grunebaum, Weiss and Moran (1971). The data obtained from the grandmothers should not be assumed to be measures of attitudes they had when their own children were 5 year olds. While the authors did not advocate this assumption, it might be made by readers interested in changes in child-rearing over time.

With Yarrow and Campbell, the present author has reported that attitudes regarding childrearing significantly change in retrospect. Mothers were asked to recall their child-rearing practices and relationship with their children, and certain personality characteristics of their children, over 3 to 30 years (period of recall). The data strongly demonstrated systematic shifts in the retrospective reports over all categories of information covered. Based on this study, mothers recalling their practices and attitudes over a period of 18 to 30 years (comparable to that for the grandmothers) would be expected to express both more and less "adaptive" attitudes. Retrospective measures should be interpreted as reflecting only current attitudes strongly influenced by current value systems as they interact with respondents' previously learned values regarding childrearing.

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Cohler, B. J.

The role of retrospective accounts in the study of intergenerational attitudes. Merrill-Palmer Quarterly, 1971, 17, 59-60.

The author responds to Burton's (1971) cautions concerning the interpretation of reports of attitudes and practices concerning childrearing (in particular in Cohler, Grunebaum, Weiss, & Moran, 1971). In response, Cohler says that he and his colleagues were concerned with the present childrearing attitudes of two generations, and ways in which they differ and/or are similar. Perhaps the way in which the term generation was used was misinterpreted; at any rate, Cohler agrees that retrospective data should not be interpreted as reflecting attitudes at the time being recalled, since they are inevitably distorted. The intergenerational study being discussed was not, however, concerned with retrospective reports, according to Cohler.

Collard, R. R.

Exploratory and play behaviors of infants reared in an institutional and in lower- and middle-class homes. Child Development, 1971, 42, 1003-1015.

Based on theory (Piaget's in particular) and on previous research with institutionalized infants, the author hypothesized that fewer patterns of exploration and play would be observed in institutional infants than in those reared at home, and in infants from less privileged homes than in infants from more privileged homes.

Three groups of 16 babies ranging in age from 8.5 to 13 months were the subjects. Group 1 consisted of institutional infants of Negro, Spanish-American and Anglo-American parentage; Group 2 infants were from working-class families and were matched to Group 1 infants in sex, race, age, and father's occupational level, and Group 3 babies were from upper-middle-class white American homes, matched to the other subjects in age and sex. The ratio of caretakers to babies was 1:5 for Group 1, 1:4 for Group 2, and 1:3 for Group 3. None of the mothers of the home infants worked outside the home.

The infant was held by his mother or a nurse at a small table on which a warm-up toy was placed for the first 5 minutes. Then the test (four colored wooden beads and a silver bell on a key chain was given to the baby; his responses to it were coded sequentially by minute for the 6 minutes after he picked it up. Two subtests from the Gesell Developmental Schedules provided a standardized measure of manipulation maturity (the Cubes, and the Cup and Cubes subtests).

Institutional infants exhibited fewer schemas in their play than did the home infants, and the lower-class infants showed fewer schemas than the middle-class infants. There was no significant difference in number of play responses or in total number of responses. Response rates between the first and second 3-minutes of the test decreased most for Group 1, followed in order by Groups 2 and 3. Ordered similarly were the number of responses requiring fine coordination and social responses made with the toy (Group 1 being lowest).

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In terms of opportunities for exploration, the institutional infants were never allowed on the floor and spent most of their time in their cribs, occasionally being placed in playpens and chairs. They did have blocks, beads, stuffed animals, cradle gyms and so on. Ten of the Group 2 infants and 14 of the Group 3 infants had been allowed to be on the floor most of the time after they were 6 months of age. The Group 3 infants had wide experience with toys, including blocks; the Group 2 babies had toys but only four of the sixteen had played with blocks or so-called educational toys. All home infants had experience with household objects (pots, pans, containers, etc.). On the Gesell Cube test, the institutional infants performed as well as the lower-class infants, but the middle-class infants did better than both of the other groups. On the Cup and Cubes test, the institutional infants (none of whom had played with containers) did less well than the home infants (all or whom had played with containers). On the more mature items of the test, 14 of the middle-class infants passed, compared with 6 of the lower-class infants and none of the institutional ones.

The amount of exploratory behavior and the variety of schemas shown by the infants appeared to depend on the range or variety of schema with which they were familiar. Opportunities for exploring and manipulating objects, the variety of objects to which an infant was exposed, and opportunities for playing with toys with other persons were related to the number of schemas displayed (and presumably, developmental advancement). The author notes that it is also possible that the institutional infants were more fearful in the testing situation and were able to explore and play less freely than the home infants who were held by a familiar person (their mother). The latter looked at and smiled at their mothers twice as often as the former did to their nurses. The home babies also evidenced more stranger fear toward the experimenter.

Gewirtz, H. B., & Gewirtz, J. L.
Visiting and caretaking patterns for kibbutz infants: Age and sex trends. American Journal of Orthopsychiatry, 1968, 38, 427-443.

This article describes a portion of a larger research project in which the ultimate goal is to assess the systematic impact of stimulation on actual child behavior patterns. Before being able to do this, a functional analysis of the childrearing environment is required. This portion of the study consists primarily of such an analysis for 4-month-old (four boys and four girls) and 8-month-old (eight boys and four girls) infants living in eleven kibbutzim (representing the three main kibbutz federations) in Israel in 1961. The authors provide considerable detail concerning their methods of observation and data recording and analysis.

Some information about kibbutz childrearing patterns, as described by the authors, is useful in interpreting their results. Childrearing in the kibbutz is guided by an explicit ideology of sex-equality. Kibbutz parents reside in quarters separate from their children, who visit them in those quarters for one to two hours prior to going to bed in the infants' or children's house. During the first 6 to 8 weeks of the infant's life the mother is on

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full maternity leave; afterward, she gradually resumes her work. Nevertheless, she plays the major caretaking role for her infant, visiting him several times a day (nursing is the most common feeding method in early months). The father sees his children primarily during their late afternoon visit. The main caretaker (metapelet) is a trained woman who is in charge of the chil.·en's or infants' house; she also instructs and helps the mothers.

The observations (about 12 hours for each infant) suggested that during the first eight months of his life the kibbutz infant sees his mother for at least twice as much time as he sees his father or metapelet. He sees his mother off and on throughout the day, while he sees his father mainly in the afternoon and his metapelet mainly in the morning. Analysis of age group trends indicated that total caretaking activities for the 4-month-olds take between two and three times as much time as they do for 8-month-olds. This reduction of caretaking time between the ages of 4 and 8 months reflects two aspects of an infant's day: he spends more of his time without adults around him, and when there are visitors in his vicinity their presence is more social and less associated with caretaking. Morning observations indicated that mothers spent more time than did the main caretaker with their 4-month-olds but the situation was reversed for 8-month-olds.

In view of the egalitarian environment of the kibbutz, sex differences are particularly interesting. The one outstanding difference is in total caretaking duration; in absolute time as well as in percentage of time awake, caretaking activities were of longer duration for boys than for girls. This was due mainly to differences in feeding patterns. The mean feeding duration for 4-month-old boys was 28 minutes as compared with 16 minutes for 4-month-old girls. Intervals between diaper changing were also reliably shorter for boys than for girls (the authors suggest that this may merely be due to anatomical differences). Both mothers and metapelets spent about the same amount of time with boys and girls, but fathers' visits to boys were longer than their visits to girls, particularly for 8-month-old infants. In general, relative to girls' scores, those of boys were characteristically in the same direction as those of younger subjects. The authors offer two possible explanations. Boys may be initially less mature developmentally than girls (their states may be more variable or may require more attention). Such constitutional immaturity could result in more caretaking. Or, boys may have learned to behave in such a way (vocalizing, crying) that they receive more caretaking attention.

* A third possible explanation of the sex differences is that despite an ideology of equality, caretakers (all female) spend more time taking care of baby boys.

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Golden, M., Birns, B., Bridger, W., & Moss, A.
Social-class differentiation in cognitive development among black preschool children. Child Development, 1971, 42, 37-45.

This article describes a longitudinal follow-up on black children who were originally assessed with the Cattell Infant Intelligence Scale and a Piagetian object permanence scale at 12, 18 or 24 months of age. Parents of children in group A were on welfare, group B parents had a high school education and group C parents had some education beyond high school. In the earlier assessments, no social class differences on either scale were found.

Data reported in this article are for 89 of the original 126 children tested at 18 or 24 months and who were now 3 years old. They were given the Stanford-Binet (S-B) intelligence test and their mothers were given the Peabody Picture Vocabulary Test (PPVT). The follow-up group consisted of 53% of the original A group, 70% of the B group, and 80% of the C group. At three years of age, large S-B score differences were obtained. For the children tested at 18 and 36 months, mean scores of the A socio-economic status (SES) level children went from 110 to 94; B group mean scores went from 113 to 104, and C group scores went from 110 to 112. For the children tested at 24 and 36 months, A scores were 96 and 93, B scores were 99 and 101 and C scores were 102 and 113. When the 36 month scores of all children were compared, the A, B, and C group means were 94, 103, and 112, with the C group means significantly higher than both the A and B groups, and the B group mean significantly higher than the A group mean.

A modified Hollingshead Index of Social Status was used to reclassify the families as 1) middle class or above, 2) working class, 3) lower class but not on welfare, and 4) lower class on welfare. The mean 36 month IQ scores for children from these groups were 116, 107, 100, and 93, respectively ($F = 8.85$; $df = 2,85$; $p < .005$). The mother's PPVT scores were correlated with the children's Cattell scores at 18 months ($r = .10$) and 24 months ($r = .28$, $p < .05$) and S-B scores at 36 months ($r = .32$, $p < .01$). These results are comparable to those obtained in previous studies by Bayley and by Honzik for white children.

The authors suggest that the reason that SES differences in intellectual growth are not manifested until about 3 years of age is probably related to the shift from the sensorimotor to the verbal or symbolic level of intelligence. They contend that language facilitates cognitive development. They also note that the welfare (A group) children were considerably more difficult to test.

* While the subjects of this study were not young infants, the article is included both because it is one of the few studies of SES differences in black children and because it is frequently quoted in discussions of the age at which SES differences tend to manifest themselves. It may be true that language facility is related to the emergence of SES differences at about age 3; however, it is just as reasonable to argue that test scores differ because the tests begin to emphasize language skills at about that age(previously having emphasized sensorimotor skills), as it is to argue that language facilitates cognitive development. The tests may simply measure language skills more than they measure cognitive ability.

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Golden, M., & Birns, B.

Social class, intelligence, and cognitive style in infancy. Child Development, 1971, 42, 2114-2116.

In an earlier cross-sectional study (Golden, Birns, Bridger & Moss, 1971), the authors found that many of the welfare children seemed more difficult to test; significantly more had to be seen more than once to obtain a valid estimate of their intellectual ability. Testing conditions in that study were optimal; candy or cereal were used as lures to motivate babies to search for hidden objects, mothers were asked to elicit responses when the examiner failed to do so, and so on. In the study reported in this paper, it was hypothesized that welfare children tested under standard (more rigorous) conditions would obtain significantly lower scores than middle-class children, that they would show greater improvement when tested under optimal conditions, and that under optimal conditions, no socioeconomic status (SES) differences would be found.

A total of 54 children between 18 and 24 months of age were studied. There were 18 from black welfare families (group 1), 18 from black higher-educational-achievement families (either parent had some schooling beyond high school) (group 2), and 18 from white higher-educational-level families (group 3). Groups 2 and 3 had the same minimal criteria but Group 3 represented a higher SES population. Each baby was given the Cattell Infant Intelligence Scale and the Piagetian Object Scales under standard conditions, and one week later, under optimal conditions.

The mean Cattell scores for groups 1, 2, and 3 under standard conditions were 94, 99 and 100, respectively, and under optimal conditions, 106, 108 and 109. The only significant effects obtained were the overall effects of condition (standard versus optimal) for both types of test. While there was significant improvement from standard to optimal conditions on both the Cattell and Object scales for all subjects, there were no significant SES differences under either testing condition, nor were there SES differences in the amount of increase from standard to optimal conditions. Particularly striking is the fact that when tested under identical conditions, 18 to 24 month-old infants from black welfare families did not differ in intellectual performance from white upper-middle-class infants.

The authors have come to the conclusion, based on their research, that social class differences in intellectual development or cognitive style are probably not present during the sensorimotor period of development, and that SES differences emerge sometime between 18 and 36 months of age, when language enters the picture.

Goodrich, W.

Infant development and mother-infant interaction. Paper presented at the workshop held by the National Institute of Mental Health, Harvard University, November 1970.

Concepts concerning the general nature of cognitive development during the second year and the nature of the connections between cognitive development and poverty are

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presented with recommendations for future research and some preliminary data from a study of cognitive development in black, first-born males in the second year of life in Harlem.

It is argued that an infant's performance on tests of cognitive development is accounted for by congenital predispositions (e.g. drive intensity), by the change processes characteristic of that developmental stage (e.g. a need to achieve some autonomy from the mother) and by the psychological dimensions of ongoing family relationships. Some findings supporting the notion of congenital styles, (e.g. Bell's task persistence in relation to neonatal sucking), and family-pattern differences (e.g. Minuchin's enmeshed and disengaged families) are reported.

Some preliminary Bayley test data obtained for 21 subjects at 14, 18, and 22 months during home observations indicated a variety of change patterns across the three ages and a range of scores which increases with age. This would argue against the notion of poverty as a prepotent uniform influence, although it was also the case that Bayley scores at 18 and 22 months tended to be lower than at 14 months. The results indicated a need for information about what ego functions are assessed by specific groups of items. It is suggested that high-scoring ability at 18 months seems to be connected with absence of stage-appropriate rebelliousness; what is the relationship between this ability to conform and later competence (is it adaptive)? Verbal expressive facility is critically related to Bayley scores; how is this related to cognitive development? The Bayley reasoning tasks tend to be verbal; how would scores compare with results on non-verbal reasoning tasks? A need for more large-sample exploration of the Bayley scales (some sub-groups are poorly represented in the sample) exists.

The observations made during this study indicated tremendous variety in both psychological styles and significant environmental dimensions in the Harlem homes, similar to the range in white middle-class family psychological styles. Means and ranges for the various time-sampling categories are reported along with some indication of a significant relationship between Bayley mental scores and some home-observation categories hypothesized to be related to competence (e.g. mother talks, $r = .23$, $p < .05$; mother rewards, $r = .25$, $p < .025$; infant imitates mother, $r = .25$, $p < .05$).

It is recommended that future studies investigate specific sub-functions within global scores of competence, intelligence, etc., and relate these to specific dimensions of the environment including social-affective aspects of personality. Direct home observation is recommended, along with investigation of the relationship between observations during the first two weeks of life and specific later developmental stages. A statistical method for analyzing sequences of interactional behavior is needed (the Markov chain approach has been inadequate). There is a need for knowledge about the specific parameters of the environment which seem most significant for children's psychological development in the urban slum. Extra funding is needed for research work with hard-to-reach, hard-core poverty families; most of the existing literature is based upon the better adapted poor families.

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Gutelius, M. F.

Childrearing attitudes of teenage Negro girls. American Journal of Public Health, 1970, 60, 93-104.

This article is a preliminary report of a study designed to evaluate the effects of an extended program of well baby care (including advice about childrearing) for firstborn Negro infants from low-income families. These services were taken to the home via a mobile coach.

Data described in this article consist of answers given to 12 questions concerning attitudes toward some problems in raising children. The subjects were 80 unmarried primiparous Negro girls aged 15 to 19 years who were of normal intelligence (Peabody Picture Vocabulary Test Scores ranged from 70 to 115). They completed the questionnaire during their seventh month of pregnancy. All had at least started junior high school and 20% had finished high school; most wanted to finish school and learn a trade or skill. About 90% had known the father of the baby for one to three years and more than half expressed love and confidence in him. The incomes of the girls' families derived mostly from unskilled labor; only three families received public assistance. The subjects did not come from hard-core poverty families.

The questions were of the multiple choice variety with the choices designed to reflect positive and negative childrearing attitudes; answers could also be written in by the subject. The answers to five questions on discipline and misbehavior indicated a preference for physical punishment for aggression against a parent and intrusive or coercive attitudes in many situations. The older girls gave more positive answers than the younger ones to the question concerning toilet training (how to handle an accident). About one-third of the subjects said that picking up a young infant would spoil him and one-third thought one should not let a child cry. In general, the subjects expressed sensitivity to the needs of children, and provided added evidence of their basic motherliness and fondness for children. However, most said they would be sparing in the use of praise, few showed an understanding of the importance of encouraging conversation with a young child, and over half had very meager ideas concerning appropriate ways to help children during the early years that would lead to future success in school. When asked about their own mothers' practices, more than 70% said that their mothers had been very strict on some days and easy on other days; the author interpreted this as reflecting inconsistent discipline.

It is also reported that 85% of the girls identified well with their own mothers, according to the data collected by the psychiatrist.

* This study was the only one found which was specifically concerned with the childrearing attitudes or practices of young mothers. Unfortunately, it has severe methodological limitations. As the author herself points out, the study concerned only attitudes, not practices, and there is some evidence that ghetto mothers are particularly prone to say one thing and do another. While the questionnaire was completed at the beginning of the subjects' involvement in the project so that they might be less likely to give answers designed to please, that possibility still exists.

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Hartman, C. R.

Psychotic mothers and their babies. Nursing Outlook, 1968, 16, 32-36.

A program for joint admissions of psychotic mothers and their children to a psychiatric unit is described (see also Grunebaum, Weiss, Cohler, Gallant, & Hartman). Four phases in the joint admission process are described in relation to specific maternal issues, and a case history is described.

Some generalizations are made, based on clinical data from eleven joint admissions. Disturbed mothers are described as tending to care for their children without accurate evaluation of the latters' responses. Most interact with their babies only when required by necessity (e.g., feeding, diapering) with limited, tactile play and little understanding or appreciation of the baby's growth and development. The mothers have difficulty adjusting to developmental transitions in the baby's behavior.

Two basic patterns of mothering are observed. The distant pattern reflects a hostile orientation to the external world as depriving and nonsatisfying. The involved pattern reflects an orientation to a disappointing, powerful world where the mother feels helpless and ineffectual. Mothers whose attitudes and responses indicate a denial of the realities associated with pregnancy require contact with their babies to remain aware that they do have babies.

Holtzman, M.

Characterization of the verbal environment provided by mothers for their young children. Paper presented at the meeting of the Society for Research in Child Development, Santa Monica, April 1969.

As part of an effort to describe the "hidden curriculum" of family settings, some particular experiences are suggested to be important for intellectual development and also relevant to observed socio-economic status (SES) differences. The verbal environment provided for the young child by his mother is the focus of this paper.

It is argued that in American middle-class discourse there seems to be a preference for giving implicit directions rather than direct orders. Children who lack experience with verbalizations containing implicit directions can be said to suffer a language deficit in the area of pragmatics (the relation of signs to behavior) as distinguished from syntactics and semantics. Similarly, the relationship of reason and order is frequently not made explicit, leaving the child to solve a cognitive problem by working out himself the implicit relationships (e.g., I can't wash your hands unless you put your beads down). Experience with such verbalizations, termed elliptical, may be necessary for school success, particularly in abstract and analytical areas, where lower SES children often have difficulty. The author suggests that mothers' verbalizations tend to occur in four contexts: 1) physical relationships, 2) needs and feelings of the mother and others, 3) behavior of others as a model, and 4) moral, aesthetic and cognitive evaluations; the first context is most likely to stimulate cognitive development.

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A system for analyzing mothers' verbalizations in terms of both the extent to which they are implicit or elliptical and their content, is described.

Data obtained from two lower and two upper-middle SES mother-child pairs were analyzed with this system (two samples of 100 verbalizations from each mother when the child's mean utterance length was two morphemes). Considerable individual differences were obtained, so that each mother could be described in terms of a pattern of verbalization, but except for the presence of grammatically deviant utterances by the lower SES mothers and their absence for the upper-middle SES mothers, no differences in the verbal environment provided by mothers were found to be related to socio-economic status.

* As with most psycholinguistic analyses of the verbal environment of children, the data are limited to a very few subjects. Only two subjects for each (widely different in terms of education) SES level were studied. The results should, therefore, be interpreted with caution.

Hurley, J. R., & Hohn, R. L.
Shifts in childrearing attitudes linked with parenthood and occupation.
Developmental Psychology, 1971, 4, 324-328.

Changes in childrearing attitudes were studied in relation to change in marital and parental status. A questionnaire consisting of 95 items concerned with attitudes toward child behavior was mailed to 119 young adults who, six years previously, had completed a lengthier questionnaire when they were students in undergraduate psychology courses at Michigan State University. The shortened questionnaire included 36 manifest rejection items (defined as the general tendency to assume a negative and punitive stance toward children), 30 overprotection items (defined as pervasive overconcern and overattentiveness toward children), and 29 achievement pressure items which were selected to represent a variety of ways in which children might be pushed toward the acquisition of social skills. The response rate was 63% (75 questionnaires were returned). This is a conservative estimate of true response rate since it is likely that addresses were outdated for some subjects. Scores on the initial (student) testing did not differ for respondents and nonrespondents. Over the six years between testing, 25 subjects had no children, 22 had one, 17 had two, and 11 had three or more. When questionnaire responses were analyzed in relation to number of children, it was found that parents of three or more children tended to shift in their attitudes more than the other groups; they gained significantly more in manifest rejection than both the none and one-child groups. In general, a substantial upward shift in manifest rejection was found (mean gain for all subjects = 3.85 points), with an opposite shift in overprotection (mean = -3.95), and a minor decrease in achievement pressure (mean = -1.49). When male subjects were roughly classified as being in person-oriented occupations (e.g. psychologist, teacher, minister; n = 19) or impersonally-oriented occupations (e.g. salesman, insurance agent, government worker; n = 18), significant relationships between attitude shifts and occupation were found. On manifest rejection the mean person-oriented group

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shift was -.11; for the impersonally-oriented group it was 10.58. On overprotection, the person-oriented group decreased an average of 5.68 points more than the other group. Achievement pressure scores did not differ.

For the subjects as a whole, sex differences were not found. However, mothers of two or more children tended to increase more in manifest rejection than did fathers (mean increase for mothers = 10.7, for fathers, 4.3). The authors interpret this result as an indication that bearing and caring for several young children within a short time span subjects a young woman to considerable stress. In a previous study, the senior author found a significant negative correlation ($r = -.39$, $p < .05$) between marital satisfaction and child density. A disproportionately high incidence of psychotic breakdown among young mothers has also been reported elsewhere.

The senior author has also previously found that parents' manifest rejection scores correlate negatively with the third-grade intelligence test scores of their children but positively with their own responses to a punitiveness index. Hurley and Hohn suggest that manifest rejection appears to bisect the hate-dominance and love-submission factors encompassing Schaeffer & Bayley's model of parent-child interaction; in this context, the notably higher manifest rejection increase among the most prolific parents appears ominous. The general drop in overprotection, however, has positive implications.

* This study raises some interesting questions about the relationships between childrearing attitudes and childbearing status. How each of these relates to childrearing practices would be of further interest. The specific results should be interpreted with caution, particularly for subgroup comparisons where the sample sizes were quite small. The absolute magnitudes of pre- and post- scores for the different groups were not reported. While it seems unlikely, it is possible that subjects with several children had lower scores on the pre-test, and while their change scores were greater, their post-test scores were not markedly different from scores of subjects with few or no children. The results do not warrant a causal interpretation as they stand.

Kahana, B., & Kahana, E.

Parenting and personality in three-generational families. Paper presented at the meeting of the Midwestern Psychological Association, Detroit, May 1971.

Childrearing attitudes and selected personality characteristics were studied in three generations (maternal descent) of 16 lower and middle-class urban families. A preschool child, his or her mother, and the maternal grandmother were administered measures of interactivity affiliation (naturalistic observation of the child, the Thematic Apperception Test (TAT) need for affiliation (N) scale for mother and grandmother). The mother and grandmother were interviewed and rated along dimensions of coldness-warmth.

The results confirmed intergenerational continuity in parental attitudes (grandmothers' and daughters' warmth scores $r = .53$). Mothers' affiliativeness was related to rated warmth

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in childrearing (r = .62), but for grandmothers the relationship was less strong (r = .25). A mother's warmth was related to her child's interactivity (r = .47). There was no significant relationship between degree of affiliation for any two of the three generations.

The authors suggest that the lack of correlation of personality measures across the generations raises questions about the mediating role of personality in the obtained continuity in childrearing attitudes. However, they note that the differences in level of personality measurement as well as the possibility of personality change in the grandmother from the time she was actively involved in childrearing until she was studied may have accounted for the finding of no relationship for personality.

Kamii, C. K., & Radin, N. L.
Class differences in the socialization practices of Negro mothers. Journal of Marriage and the Family, 1967, 29, 302-310.

Class differences in the socialization practices of Negro mothers were investigated in the context of their childrearing goals. Direct observation of mother-child interactions in the 40 homes and a card-sorting method of studying childrearing goals led to the conclusion that middle-class and lower-lower-class Negro mothers of four year olds do not differ fundamentally in their childrearing goals, but that they do differ considerably in their socialization practices. Middle-class Negro mothers were found to gratify children's socio-emotional needs, to use bilateral influence techniques, and to reward children for desirable behavior significantly more often than lower-lower-class Negro mothers. These practices are discussed in the context of psychoanalytic theory.

* This study is briefly reported because the subjects were not infants but four years of age. It is noted because it provides a within-race class comparison rather than a between-race comparison in which differences due to class and race would not be separable.

Lewis, M.
Sex stereotypic behavior in infants: An analysis of social-interpersonal relationships. School Review, 1972, in press.

The author discusses some of the processes which produce some of the observed differences between male and female behavior. Parents behave differentially to boy and girl infants, and some of this response may be a result of biological differences. Not enough information is available to determine how much of the difference is due to biological disposition and how much to experience. From common experience it is apparent that even before the child is born, and definitely afterwards, parents, friends and the community respond to infants according to their sex. Indeed, sex is the characteristic most attended and responded to (the new parent says "I have a girl (or boy)", not "I have a healthy baby"). Some

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consequences of such parental behaviors are discussed. Parental behavior relating to the development of attachment between parent and child varies as a function of the sex of the infant. Research evidence indicates that for the first few months of life, boys receive more proximal behavior (touching, holding, rocking, kissing, etc.) than do girls, but by six months of age and for the next year or two, girls receive more of both proximal and distal (looking, vocalizing, etc.) behaviors. This is interpreted as a reflection of an important socialization process, namely, to move from an earlier proximal mode of social interaction to a later distal mode. Boys are apparently moved faster along this continuum, and the author suspects that the socialization from proximal to distal behavior is never as severe for girls. Techniques used in this socialization include turning the child away from a face-to-face position with his parent, and attracting his attention away from his mother.

Why mothers initially touch boys more than girls in unclear. It may be that 1) boys are more valuable to the mother, or 2) boys are more fretful and upset at birth than girls, or 3) boys quiet more to physical stimulation than girls, and girls quiet more to auditory stimulation.

Some sex differences in terms of adult interpersonal relationships may be a result of very early differential socialization. In the American society in general, proximity (touching) for men is restricted to the opposite sex, and its function is primarily sexual in nature. But, while women are restricted in their proximal behavior toward men they are allowed much more contact with other women (two women dancing together is acceptable, but two men doing so is not). The amount of physical contact allowed toward children is also greater for women. Among other cultures (Greek, Italian, Jewish, French, etc.) greater physical contact between men is allowed. The author suggests that proximal behavior toward boy infants may be culture specific.

These findings indicate that in social interpersonal relationships, women have more freedom of action. The society does not view proximal behavior and feelings as positive goals, and women are not allowed these characteristics out of generosity. One could argue, however, that men are being deprived of these opportunities (people seem to be moving in that direction, with current emphasis on feeling and group interaction). The feminization of society may evolve.

Lewis, M., & Wilson, C. D.

Infant development in lower class American families. In M. Lewis (Chm.), Cross-cultural studies of mother-infant interaction: Description and consequence. Symposium presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

This study of social class differences was aimed at understanding the process whereby differences develop rather than mere description of those differences. Previous research has documented such differences beyond about age three, but not before. If social class is a carrier variable, one would expect to be able to discern earlier the reasons for later differences. Three possible reasons for failure are suggested: lack of sophisticated measurement, social class

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effects may be cumulative and too slight at early ages, or class effects may have their greatest impact on psychological phenomena which do not emerge until later (or may have different effects at different ages).

Two full hours of waking time home observations were obtained for 32 white and black 12-week-old infants. Five social categories (Hollingshead) were used, ranging down to unskilled employees with less than seven years of school (Class V). Between 3 and 9 infants were in each class; boys and girls were approximately equal in each group, and because of the small numbers, the data were not analyzed by sex. A check list sheet was used to record a variety of infant and maternal behaviors in 10-second intervals.

The infant behavior frequency data indicated that lower socio-economic status (SES) infants vocalize and smile more and fret/cry less than upper-middle SES infants. Maternal touching, holding, smiling, looking and playing were more frequent among lower SES mothers. Maternal vocalization showed no differences, and was the only maternal behavior which did not favor the lower SES child. Lower SES mothers also spent more time watching TV. Across class, maternal and infant frequency behaviors were relatively strongly related (vocalizing and smiling for both, maternal positive behavior negatively related to infant frets and cries, etc.).

In terms of interaction, a greater number of interactive units was found for lower SES infants. When actual behaviors were examined, some class differences in style of maternal behavior were found. Middle SES mothers vocalize when their infants vocalize, touch and hold them when they fret/cry or show large physical movement and watch them play. Lower SES mothers touch their infants when they vocalize and vocalize to them when they fret/cry, show large physical movements and when they play.

Some measures of cognition and attention were administered. There were no class differences on the Bayley Mental Development Index or on an object permanence task. Lower SES infants showed greater response decrement and recovery to redundant and novel visual stimuli; both measures reflect perceptual-cognitive ability. (Indeed, about 60% of middle SES infants failed to show these attention behaviors, in comparison with none of the lower class infants).

These social class differences in 12-week-old infants favored lower SES infants. How do these results relate to the poorer performance of 3-year-olds of low SES status, and how does that poorer performance relate to earlier caretaking? In terms of 3 factors important to perceptual-cognitive growth, attachment, stimulation, and reinforcement contingency, the evidence is either that there are no SES differences or that lower SES infants are favored. A fourth possible factor, maternal style of response, was found to be different for different SES levels in this study. In particular, middle SES mothers vocalized to their infants when they vocalized, but lower SES mothers did so less. The authors invoke Sigel's concept of distancing as a possible explanation of the development of SES differences; greater distancing is argued to lead to more representational thought. The distancing concept is similar to the distinction between proximal (close) and distal (more remote) stimulation: information received through distal receptors (eyes, ears) is information received from a greater distance.

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In this study, looking and vocalization were the only behaviors not favoring the lower SES mother. It may be the case that while distancing facilitates the development of representational thought after two years, proximal interaction (such as touching), facilitates early pre-representational thought, thus accounting for the superior early performance of lower SES children. This notion has some support from Geber's work with African children; he found that infants receiving great amounts of proximal interaction were precocious for the first two years and retarded thereafter in comparison with infants with less initial proximal interaction.

Lusk, D., & Lewis, M.
Mother-infant interaction and infant development among the Wolof of Senegal. Unpublished manuscript, March 1971.

While studies showing the detrimental effects of unstimulating environments on development have been more common, a few studies of African infants have suggested that certain environmental conditions may accelerate the rate of development. Thus, ten Senegalese infants were studied with their caretakers to assess their level of development in relation to caretaker-infant interaction.

The study was conducted in Dioubel, a town of largely unacculturated (not westernized) families (none of those visited for this study had ever before entertained a white person in his home, and several children had never seen a white face). The ten infants ranged in age from two to twelve months, and lived in households of from seven to fifteen persons. Most had three caretakers (one had two and one had four). After a number of familiarization visits, observations were made in several short sessions, up to a total of about four hours for each subject. Behaviors recorded for infants were: fret/cry, extreme movement, look, vocalize, smile, and touch; for adults, they were: touch-gross (e.g. rock, bounce), touch-fine (e.g. pat, kiss), vocalize, smile, and approach. Following observation, the Bayley Scales of Infant Development were administered. Interactive aspects of behavior were studied by noting the sequences of behaviors involving both caretaker and infant which a) fell within one ten-second period, or b) extended over two or more periods but were judged to be continuous. All other behaviors were noninteractive.

Overall behavior frequencies increased with age for infants but not for caretakers. However, caretaker behavior during interaction increased significantly with age, and during noninteraction, decreased significantly with age. Infant behaviors changed with age from passive-reflexive to more active; crying and looking decreased while vocalizing, touching, and smiling increased. Caretaker behavior changed from proximal to more distal behaviors; touch-gross and touch-fine decreased while vocalizing and smiling increased. No sex differences, birth order effects, economic class or family size differences were found.

Scores on the Bayley mental development index were on the average 1-1/4 months above that expected for their age level (nine of the ten infants had scores above 100, the average). Scores on the motor scale were even more advanced, being an average of two months above age level (six of the ten infants tested above 150, the limit of the scale). Scores on both subtests were not related to any interaction measures or demographic variables.

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With the caution that the sample size was small, some possible interpretations of the data are offered. Particularly surprising to the authors was the lack of relationship of interaction patterns to the age of the caretaker or to the caretaker's relationship to the child. The caretakers ranged from 7 to 70 years of age and included natural mothers, maternal grandmothers, sisters, and distant cousins. It is suggested that where extended families and early participation of children in family activities are common, effects of multiple mothering will not be found. Even more puzzling was the lack of relationship between Bayley scores and measures of interaction, since there has been wide acceptance of the view that maternal stimulation affects infant development. The authors relate their findings to those of Geber who found initial precocity in African newborns which was continued in infants raised traditionally, but lost in acculturated families. Attendance at nursery school maintained the rate for traditional children and brought westernized ones up to a normal developmental level. It is suggested that either genetic factors or maternal practices during pregnancy may account for newborn precocity, and traditional tribal care practices may merely maintain this level rather than accelerate it. After two years, nutritional factors may begin to retard development in traditionally raised infants. On the other hand, it may be that development during the first year is enhanced by stimulation available in the traditional environment, but other kinds of stimulation are necessary for further development

Messer, S. B., & Lewis, M.
Social class and sex differences in the attachment and play behavior of the year-old infant. Merrill-Palmer Quarterly, 1972, in press.

Thirteen-month-old infants (16 girls and 17 boys) from lower (working) class families were observed with their mothers in a free play situation. The experiment was a replication of the Goldberg and Lewis (1971) study with middle class infants.

Social class differences in play were found for only one measure of attachment to mother; infants of lower class parents vocalized significantly less to their mothers than did infants of middle class parents, and this was true for both sexes. There were no class differences in style of play (the number of times the infant changed toys, and the longest time spent with one toy, both considered to be measures of the rate at which children process information). The middle class infants were more mobile (they covered more floor area). Differential toy preferences were shown; middle class infants played more than lower class infants with the mallet, lawnmower, and quoits, and the opposite was true for blocks. These data tentatively suggested that middle class infants paid most attention to the toys with the most varied manipulation possibilities.

Sex differences in behavior thought to reflect the infant's attachment to his mother paralleled those found for middle class infants (in a different city at a different time). For neither sample were there sex differences in style of play. Lower class girls covered more area than lower class boys; middle class boys and girls did not differ. While several sex differences in toy preference were found for the middle class infants, no significant differences were found for the lower class infants.

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The most impressive finding of the study was that lower class infants vocalized considerably less than middle class infants (54.4 versus 139.07 mean seconds). This suggests that the linguistic deficit in both the lower class mother and her infant found in several other studies may be evident as early as 13 months.

The class differences in movement about the room may be a function of toy preference, rate of acquisition of mobility (chiefly walking), or general motoric behavior. The finding that there were fewer sex differences among lower than among middle class infants in toy preference, style of play, or infant-mother attachment suggests the possibility that lower class parents differentiate less between boy and girl infants than do middle class parents. Sex differences within the group of lower class infants were greatest in infant-mother attachment behavior, with girls showing greater attachment. Girls also vocalized more. These findings are comparable to those obtained with middle class infants and may have implications for cognitive development. Older girls have been shown to possess greater verbal skills than boys while boys excel in tasks involving reasoning and gross-motor skills. This may result in part from early interaction patterns.

Moss, H. A., & Kagan, J.
Maternal influences on early IQ scores. Psychological Reports, 1958, 4, 655-661.

The relationship between ratings of maternal concern with achievement (based on observations of mother-child home interaction) and Stanford-Binet IQ scores at ages 3 and 6 years was studied in two samples (A = 19 boys and 25 girls; B = 59 boys and 40 girls). For both samples the relationship at 3 years for boys was significant (for A, $r = .42$; B, $r = .41$) but it was nonsignificant for girls at both age levels and for boys at 6 years. Maternal IQ and education level were fairly highly correlated, but neither was strongly related to maternal acceleration for boys or for girls.

The authors suggest that other tentative data indicate that different patterns of mother-child interaction may account for the sex differences.

Moss, H. A., Ryder, R. G., & Robson, K. S.
The relationship between pre-parental variables assessed at the newlywed stage and later maternal behaviors. Paper presented at the meeting of the Society for Research in Child Development, New York, March 1967.

The longitudinal method was used to assess the extent to which pre-parental attitudes and early marital patterns were related to maternal behavior during the first three months of life.

The data reported are based on interviews during the fourth month of marriage with 23 wives aged 18 to 25 years (their husbands were aged 20 - 27) who had infants available for follow-up study (mean interval of 21 months later), and on two time-sampled eight-hour home

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observations of maternal behavior. Ratings on 9-point scales for ten global variables were obtained for the wives' interviews, and four factor scores were available for each couple based on a variety of sources. These were correlated with a measure of maternal responsiveness (based on the amount of contact, with irritability level of the infant controlled), obtained at 3 weeks and again at 3 months of age.

The relationships at 3 weeks were of marginal or no significance, but at 3 months some variables associated with a feminine orientation were related to maternal behavior. These were interest in serving in a nurturant role ($r = .47$), the degree to which the baby was seen in a positive sense ($r = .43$), frequency of positive interaction reported during childhood ($r = .45$), and degree of identification with own father ($r = -.72$).

In terms of early marital patterns, tendency to maintain closeness with the husband's family ($r = .54$) and traditional role behavior ($r = .51$) were related to maternal responsiveness at 3 months (marital conflict and closeness to wife's family were unrelated).

The lack of relationship of antecedent variables to maternal responsiveness at 3 weeks was interpreted as reflecting lack of stable interaction patterns and disequilibrium.

Palmer, F. H.
Socio-economic status and intellective performance among Negro preschool boys. Developmental Psychology, 1970, 3, 1-9.

The author points out that the relationship between socio-economic status (SES) and performance has been well documented for Negroes of school age, but not for the preschool ages. The data reported in this article represent part of a longitudinal study being conducted at the Institute for Child Development and Experimental Education Laboratory, Harlem Research Center to determine the effects of intervention for children two and three years of age.

The subjects were 310 Negro males, of whom 120 were trained for eight months beginning at age two, 120 were trained for eight months beginning at three, and 70 were controls who were tested but not trained. Subject identification and selection included several steps; at each stage, greater than 70% participation was obtained. There were no class differences in likelihood of participation following contact.

A correlation of only .52 was found between occupation and education when the Hollingshead SES index was used (Hollingshead reports a correlation of .72) indicating that more education did not necessarily lead to a better occupation for the Harlem Negroes studied. For this study, heads of households in Hollingshead Category V (the lowest category) were designated lower class; comparisons were made between subjects in Category V and those in I through IV.

Testing (done at the Center) was not begun until a good relationship with the child had been established. This occurred for most children on the third visit, but some required five visits.

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Time required for administration of the test battery ranged from 4 to 15 hours. There were no SES differences in program attendance, which averaged 80% over the eight months. Tests administered included the Stanford-Binet (S-B), the Peabody Picture Vocabulary Test (PPVT), a Concept Familiarity Index (CFI), and other motor, discrimination, reaction time, sorting, etc. tasks. Persistence with a boring task and ability to follow instructions were also assessed. A series of t-tests showed no pattern of SES differences, with the exception of the tendency for middle class subjects to score higher on the PPVT at three and again at three years-eight months. Lower level correlations between language loaded measures and SES were found across age, but the magnitude of the relationships did not increase with age as would be expected if SES was emerging as a significant influence in the child's intellectual development.

Since other studies have found SES differences among older Negro children, why were such differences not found with the preschool subjects in this study? One possible explanation lies in the fact that the lower class (Category V) subjects of this study came from poor but relatively stable families; low SES transients were not identified with the subject selection process used. Studies of older children in which SES differences among Negroes were found may have included what Myrdal has referred to as the underclass (transients, migratory workers, drifters). It may also be the case that the stereotype of the lower class mother of a young child as unmotivated and incapable is a myth. In this study she was as motivated to include her child in the program as were middle class mothers. However, as her child gets older, he becomes less subject to her control and more exposed to the larger environment, and she may at that point become less capable and/or motivated. Another possible explanation is that the middle class Negro family is no more like the stereotype of the middle class family than is the lower class Negro family like its stereotype. The characteristics of the middle class stereotype associated with childrearing practices may simply not have been absorbed by the middle class Negro family. Another factor may be the care taken in this study to insure that all children were comfortable in the testing situation; when this is not done (as in most studies) the middle class child is probably at an advantage because he is better adapted to the testing situation as a result of his experiences.

Radin, N.

Paternal childrearing practices and preschool-aged boys. Developmental Psychology, 1972, in press.

A relationship between preschool boys' IQ scores and observed nurturance in their fathers was hypothesized. It was also expected that a father's nurturance would be related to his son's preference for a male sex-role, which in turn would be related to IQ score, and that all of these relationships would apply to both lower and middle class white families.

The subjects were 42 four year old white boys, of whom 21 were lower class and 21 were middle class, and their fathers. A home interview was conducted with the father in the presence of his son. It was expected that the young child would become bored during the interview, thus providing an opportunity to observe father-son interaction. From tape recordings, the thirty-minute segment of the interview which contained the most interaction was scored using twenty predetermined categories which covered two larger clusters termed Nurturant Behaviors and

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Restrictive Behaviors. A few weeks after the interview the child was given the Stanford-Binet (S-B) and Peabody Picture Vocabulary Test (PPVT).

Lower class boys obtained significantly lower S-B and PPVT IQ scores than middle class boys, and fewer interactions as well as fewer nurturant behaviors were observed for lower class fathers. Among the nurturant behaviors coded, class differences were found on fully meeting explicit needs of the child, meeting implicit needs of the child, and asking information of the child, with lower class fathers scoring lower on all three. Class differences were not found for restrictiveness or any of its component scores, or for the It Scale score (which was the measure of sex-role identification).

For the sample as a whole, nurturance was significantly correlated with Binet IQ ($r = .49$) and with PPVT IQ ($r = .52$). The It Scale score was not related to any of the intellective or behavioral variables (contrary to the hypothesis). Restrictiveness was negatively related to Binet IQ ($r = -.36$).

When correlations were computed separately for the two classes, there were striking differences in the IQ correlates. For the middle class subjects, nurturance and IQ were related ($r = .48$ for S-B, $.42$ for PPVT) but for the lower class, the only variable related to IQ was the It Scale score, and the correlation was negative ($r = -.44$) indicating that more feminine sex-role preferences were related to higher IQ scores. Asking information of the child was related to both Binet IQ and PPVT IQ for the total sample, the lower class group and the middle class group. Stepwise regression analyses indicated that paternal nurturance and restrictiveness together accounted for 36% of the variance in S-B IQ, with a similar pattern for the PPVT.

These findings indicate that paternal nurturant behavior was more closely associated with IQ scores of preschool boys than any other variable assessed, including father's education and job rating. One possible explanation is that paternal warmth fosters or facilitates thinking in young boys.

Male sex-role preference was not related to paternal nurturance, as had been expected, nor was a male sex-role preference correlated with IQ. For lower class boys, a feminine sex preference was related positively to IQ. The author suggests that the masculine sex-role stereotype of the lower class culture may preclude sedentary, intellectual activities, with few role models of men who prefer such activities. This may mean that when the lower class boy enters school, he has to choose between masculinity and academic activities. If strongly masculine teachers were available as models in elementary schools, the situation might be different.

The results caution against generalizing from one class to another. The class differences obtained were similar to those observed previously for mothers. The author points out that the results do not warrant a causal interpretation; fathers may behave more nurturantly to boys who are intellectually advanced. The results do indicate that fathering is relevant to the cognitive functioning of boys, and therefore should not be ignored by those studying development or attempting intervention.

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Rosenthal, T. L., Henderson, R. W., Hobson, A., & Hurt, M.
Social strata and perception of magical and folk-medical child-care practices. The Journal of Social Psychology, 1969, 77, 3-13.

Belief in magical child-care procedures was studied in 37 non-Anglo women who were primarily Mexican-American but including Negro and Indian (Yaqui) and in 52 lower-income (median annual income $4500) and 50 upper-income (median annual income $17,500) Caucasian Anglo-American women residing in the Tucson region of sourthern Arizona. Respondents expressed agreement on a seven-point scale to ten belief items from the standpoint of a) most people in their community; b) Mexican-Americans; c) Negroes; d) typical Americans; e) themselves. Some sample items were: a) babies fed on the bottle may get big navels because air from the bottle presses into the tummy, and b) teething problems can cause upset stomachs; cutting teeth can also give the baby a temperature.

The results indicated that both Anglo groups rejected the folk-medical healing lore unequivocally. The mean agreement of non-Anglo women fell close to neutrality, with individual respondents accepting and rejecting specific beliefs with greater vigor. Caution must therefore be used regarding the actual level of acceptance of such cures in the non-Anglo community. As groups, the non-Anglo group accepted the main cures investigated significantly more than did the low-Anglo group which in turn was higher in acceptance than the upper-Anglo group. The sizeable group differences stemmed more from the intense disagreement of the Anglo women than from strong agreement among the non-Anglo women. Unlike both other groups, who perceived belief similarities between Negro and Mexican-American people, the low-Anglo women distinguished sharply between these outgroup minorities. All groups judged that such magical cures would be used less often, if at all, by the next generation of mothers

Rubenstein, J.
Maternal attentiveness and subsequent exploratory behavior in the infant. Child Development, 1967, 38, 1089-1100.

Evidence suggests that stimulation facilitates infant development, particularly cognitive development. Assuming that maternal attentiveness is the chief source of varied stimulation for the young home-reared infant, exploratory behavior at six months should vary with maternal attentiveness at five months, the hypothesis of this study.

Eight male and seven female infants of mothers rated high in attentiveness were selected from a group of white five-month-olds from intact nuclear families with no extended relatives in the home, and the mother not employed outside the home. Similarly, eight male and seven female infants of mothers rated medium in attentiveness, and six male and eight female infants of mothers rated low were chosen. Two time-sampled home observations were used to assign mothers to attentiveness groups; the number of times the mother was observed to look at, touch, hold, or talk to her baby constituted the measure. When the infant was in his sixth month, exploratory behavior was measured while the infant was seated on his mother's lap at the

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kitchen table. A one minute habituation period preceded the test. Then a bell was rung and placed on the table within the baby's reach. During the next ten minutes, his looks, vocalizations, and manipulations were recorded. Following a five minute interval with a buffer toy, the (previously novel and now familiar) bell was presented paired with each of ten different novel objects, and preference scores were obtained.

No sex differences were found. Mean looking, tactile manipulation and vocalization scores on the bell test, and looking and manipulation for the pairs test, were significantly ordered for the three attentiveness groups (all highest for infants in the high attentiveness group). Intergroup comparisons indicated significant high-low group mean differences for all variables, but high-medium differences for the pairs test variables only, and non-significant medium-low group differences.

Thus, a positive relationship was found between a quantified measure of sensory-social stimulation and the infant's exploratory behavior. Infants who, on that basis, had received less varied stimulation were less responsive to novelty than infants accustomed to a high degree of variety. The results also suggest however, that the relation between stimulation and exploration may not be linear. The overall findings were due to a relatively small group of infants who received a high degree of attentivaness and thus had an advantage over the remaining majority, rather than a deprived group with extremely inattentive mothers. It is also possible that infants with a high propensity toward exploration elicit a great deal of attention from their mothers. Therefore, the results should not be presumed to indicate that maternal attentiveness leads to increased exploratory behavior.

Schaffer, H. R. (Ed.)
The origins of human social relations. London: Academic Press, 1971.

This book is the result of a conference of a group of individuals all actively involved in the investigation of early social behavior. Several research reports and theoretical papers were discussed, and a number of trends (such as increasing attention to individual differences and factors such as sex, social class, cultural membership) became apparent. Some of the research forming the basis of papers included in the book has been abstracted separately. Here, the titles of the chapters will be merely listed with the name of the author(s).

Under the topic, Aspects of Early Social Behaviour, papers by M. D. S. Ainsworth, S. M. V. Bell, & D. J. Stayton (Individual differences in strange-situation behaviour of one-year-olds), G. W. Bronson (Fear of the unfamiliar in human infants) and H. L. Rheingold, & C. O. Eckerman (Departures from the mother) are included, along with a general discussion by the participants of sex differences in early behavior. (Each paper in the book is also followed by the discussion of the participants).

A section on comparative perspectives includes papers by L. A. Rosenblum (Infant attachment in monkeys), and J. van Lawick-Goodall (Some aspects of mother-infant relationships in a group of wild chimpanzees), and a general discussion concerning the categorizing of behavior.

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The topic of social perspectives includes papers by A. G. Stevens (Attachment behaviour, separation anxiety, and stranger anxiety), J. Tizard & B. Tizard (The social development of two-year-old children in residential nurseries), J. Kagan & S. R. Tulkin (Social class differences in childrearing during the first year), M. P. M. Richards (A comment on the social context of mother-infant interaction), and S. Brody & S. Axelrad (Maternal stimulation and social responsiveness of infants), and a general discussion on the nature and development of fear.

A section titled "Basic Processes" includes papers by J. P. Scott (Attachment and separation in dog and man: Theoretical propositions), H. R. Schaffer (Cognitive structure and early social behaviour), W. C. Bronson (The growth of competence: Issues of conceptualization and measurement), and a general discussion of "Mother-infant interaction: Characteristics and dynamics."

Smothergill, N. L., Olson, F., & Moore, S. G.
The effects of manipulation of teacher communication style in preschool. Child Development, 1971, 42, 1229-1239.

This study was designed to test the effects of restrictive and elaborative communication styles (a distinction proposed by B. Bernstein; he contends that the former is characteristic of the lower classes while the latter is more common among middle class parents) on reflection-impulsivity and passive compliance vs assertiveness. The subjects were 24 day care children who ranged in age from three years, six months to five years, three months.

During a four week experimental program half of the subjects were taught in an elaborative and half in a non-elaborative style. Problems requiring alternate solutions and a motivation task were given before and after the program.

The groups did not differ on three non-verbal tasks; on two verbal tasks the elaboratively taught groups gave more task-relevant elaborations and improved more. A possible modeling effect was hypothesized.

Tulkin, S. R.
Mother-infant interaction in the first year of life: An inquiry into the influences of social class. Summary of unpublished doctoral dissertation, Harvard University, 1970.

White ten month old first-born girls, 30 from professional families and 30 from working class families, were observed with their mothers at home for two 2- hour periods, and were also assessed in a series of laboratory sessions.

Large within-class variation in maternal behavior was observed. Two important social class differences were found. First, professional class infants had a greater opportunity to experience "distinct" auditory stimulation: they lived in less crowded homes, spent less time

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in front of television sets, and had less interaction with adults other than their mothers. Professional class mothers both initiated more vocalization and responded to their infants' vocalizations more frequently. The second major difference was that professional class infants were "kept busy" more often than working class infants: they had more toys and were less often confined in a playpen or high chair. There was some evidence that professional class women responded more often and more quickly to fretting infants. There were no class differences in care (amount of time in physical contact or within two feet was equal, and mothers were equally prohibitive).

In the lab, professional class infants showed larger decreases in vocalization during a meaningful tape-recorded passage when compared with a meaningless one. Following the passage, they also gazed longer at the female experimenter, as if looking for the source of the speech. They also showed greater decreases in physical activity when they heard a tape-recording of their mother's voice in comparison with a stranger's voice, and they babbled more following their mother's recording than did working class infants. The vocalization response appeared to be a more central index of information processing among the professional class infants; the author attributed this class difference to the higher level of verbal interaction experienced at home.

In a structured play setting, professional class infants engaged in more exploratory behavior during the initial adaptation period. Most play behavior differences, however, were within class differences.

About 40% of the infants in each class group cried when their mothers left the playroom, but professional class infants did so with shorter latencies. Among working class infants whose mothers worked (7), not one cried when her mother left the room, while 9 of the 17 whose mothers did not work cried. When the mother returned, only one infant of the working mothers crawled to her, but 10 of the 17 infants of non-working mothers did so.

It is suggested that the data argue that social class itself is not an adequate control for infant experience. The actual experiences which contribute to differences in behavior need to be examined.

* It should be noted that all of the infants were girls. Some other research findings suggest that early vocalization is related to later intelligence test scores for girls, but not for boys.

Tulkin, S. R.
The effects of experience on infants' reactions to separation from their mothers. Paper presented at the meeting of the Eastern Psychological Association, New York, April 1971.

Infants' reactions to separation from and reunion with their mothers were examined in relation to their experiences with their mothers at home.

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The subjects were 30 middle class and 30 working class white mothers and their first born ten-month old daughters. Maternal behaviors observed included location of mother in relation to the child, response to infant fret, vocalization, nonverbal responses, and maternal prohibitions. In addition to being observed for about two hours at home with their mothers, the infants were observed in a separation session conducted in a laboratory setting. Latency to cry, amount of crying, and total time playing with the toys were observed.

About 40% of the infants from each social class group cried when their mothers left the room. The latency to cry was longer for the working class infants (mean 28.4 seconds vs 5.4 seconds for middle class criers). In general, behavior in the separation session was not related to maternal behaviors observed in the home. The only meaningful finding was that the amount of time the mother held her child at home was related to less crying during the separation session ($r = -.335$ for middle class subjects, $-.387$ for working class). The infants were dichotomized according to a) cried vs didn't cry at separation, b) crawled to mother vs didn't when mother returned, and c) those who cried and crawled vs those who neither cried nor crawled. Middle class infants who cried and/or crawled spent more time face-to-face with their mothers at home, and working class infants who cried and/or crawled spent less time in this position. The data suggest that working class infants who cried during separation may have experienced more interaction with their mothers when the latter were over two feet away than did middle class criers. This might indicate that for working class infants it was not the separation per se that led to crying, but the fact that mothers did not interact with them during separation. This is supported by the longer latency to cry of the working class infants; anxiety was not aroused by the mother's leaving, but perhaps by her not saying anything afterward.

The author is careful to point out that reactions to separation may not necessarily reflect attachment. Kagan's "discrepancy-from-schema" hypothesis is offered as an explanation of the responses of the infants in this study to the separation session. This theory assumes that infants develop a schema (or internal representation) for their mothers during the first few months of life, and once the schema has been developed, large discrepancies from it elicit fear responses. In this study, for infants whose mothers worked, mother leaving was not a discrepant event (none of the seven infants of working mothers cried). Middle class infants spent more time than working class infants in a face-to-face position with their mothers, so her leaving the visual field would be a more discrepant event for middle class infants, who cried very quickly after she left. The strange situation for the working class infant may not have been that his mother left the room, but that he didn't hear her after she left, thus his longer latency to cry.

Tulkin, S. R.
Infants' reactions to mother's voice and stranger's voice: Social class differences in the first year of life. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

Some class differences in the language related behaviors of ten month old first-born girls are described. It is suggested that previous results indicating no class differences among young infants may merely reflect insensitivity in assessment procedures. Moore's findings that

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the "speech quotient" of six month old girls was significantly correlated with vocabulary at three years of age, and that the "speech quotient" of 18 month old girls was significantly related to vocabulary scores at eight years are mentioned along with Bayley's obtained correlation of .80 between girls' vocalization scores during the first year of life and Wechsler-Bellevue IQ at 26 years.

Comparisons of infants' responses to mother's and stranger's voices suggested that the middle class infants responded differently to the two stimuli, but the working class infants did not. There were no differences in vocalization or movement during the two passages, nor was there a difference in heartrate deceleration. However, middle class infants quieted more during their mother's passage and vocalized more following it than did working class infants. Most striking were the differences in looking behavior, with a greater tendency for middle class infants to look at the correct person following the passage.

The looking response data are related to previous findings by Turnure, Kagan, and Dennis & Najarian (who reported that the most dramatic deficiency in institutionalized infants they observed was that they did not turn to the source of a sound).

While the greater differential response of middle class infants is suggested to be most likely related to experience with verbalization, correlations between the home observations and the laboratory findings were only suggestive. None of the home observation variables was correlated with differential looking behaviors. Distinct face-to-face vocalization at home and differential vocalization following the first presentation of mother's and stranger's voices yielded correlations of .464 ($p < .05$) for middle class subjects and .444 ($p < .05$) for working class subjects.

Tulkin, S. R., & Cohler, B. J.
Childrearing attitudes and mother-child interaction among middle- and working-class families. Merrill-Palmer Quarterly, 1972, in press.

This study addresses the question of the relationship between childrearing attitudes and childrearing practices. Most studies have focused on a few dimensions (often authoritarian versus democratic control) of maternal attitudes. The Maternal Attitude Scale used in this investigation is designed to reflect the role of the mother's own developmental conflicts in determining her attitudes toward childrearing.

The subjects were 30 middle-class and 26 working-class white mothers and their first-born ten month old daughters. They were observed at home for two hours on each of two days; coded variables examined in this study were concerned with location of mother and infant (time face-to-face, etc.), physical contact, prohibitions (verbal and physical), maternal verbalization, and maternal actions to keep the infant busy. The environment was also described. The Maternal Attitude Scale was completed by the mother following the final observation; three working class and two middle class mothers failed to return it.

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Class comparisons of attitude factor scores indicated that middle class mothers reflected more appropriate control of aggressive impulses, greater encouragement of reciprocity, acceptance of emotional complexities in childrearing, and comfort in perceiving and meeting a baby's needs. The classes were not different in attitudes regarding appropriate and inappropriate closeness.

When the five attitude factors were correlated with the seventeen maternal behaviors, 15 of the 85 correlations for middle class mothers were significant. Of these, 10 were concerned with encouragement of reciprocity. Mothers who endorsed statements reflecting a belief in reciprocity were less likely to keep their infants in a playpen for long periods, and more likely to interact with their infants in both verbal and nonverbal modalities. The attitude-behavior relationships for working class mothers were less clear; only 4 of the 85 correlations reached statistical significance.

The authors describe the study's unique contribution as a demonstration of a significant relationship between maternal attitudes and childrearing behavior. Apparently, middle class mothers reflect the belief that infants can communicate and that mothers can understand and respond. They also spend more time with their daughters in a face-to-face position, respond to her vocalizations, imitate her vocalizations, give her objects to play with, and respond to a higher percentage of her frets. It is suggested that at this age the issue of reciprocity is of paramount importance, so the results are not surprising. However, such a relationship was not found for working class mothers. There is some evidence that such mothers tend to feel they can have little influence over the development of their infants, which might make them less likely to act on whatever beliefs they have.

* This study does demonstrate a relationship between beliefs and practices in one area for middle class mothers (a pattern of 10 correlations was obtained for the reciprocity attitude factor). However, the authors also discussed the other 5 of 85 correlations found to be significant, and the 4 of 85 for working class mothers. It is equally likely that such small numbers of correlations following no particular pattern occurred by chance. These results indicate that there may be a relationship between particular attitudes and behaviors for some mothers, but a general conclusion is not warranted.

Tulkin, S. R. & Kagan, J.
Mother-child interaction in the first year of life. Child Development, 1972, 43, 31-41.

The major findings in a home-observation study of 30 middle class and 30 working class Caucasian mothers and their first born-daughters are reported and discussed. The authors point out that failure to consider specific early experiences of humans which may be related to later development has led to the labeling of particular backgrounds as deprived, they argue strongly that such labeling is defamatory and because of oversimplification, hinders understanding of developmental processes.

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The findings of this study are described in more detail above (Tulkin, 1970). An additional class difference noted was that middle class mothers (one or both parents had graduated from college and in addition, the father was working in a professional job) more often placed their infants in a face-to-face position than did working class mothers (either one or both parents had dropped out of high school, but neither had any college, or the father worked in a semi skilled or unskilled job). Every verbal behavior coded was more frequent among middle class mothers ($p < .01$ for all). However, there were no social class differences in the infants' tendencies to vocalize spontaneously, suggesting that maternal differences in vocalization were not attributable to initial differences among infants. The significant class differences appeared to result from a subgroup of middle class mothers who were highly verbal with their infants rather than from a deprivation uniquely characteristic of working class families.

The mothers also completed an attitude questionnaire. Some working class mothers felt it was futile to attempt to interact with their infants; a common philosophy appeared to be that only after a child began to talk was it important to speak back. Also, working class mothers tended to feel they could have little influence on the development of their children. This finding suggests that attempts to change maternal behaviors, without regard to their source or to other aspects of the social system, are unlikely to succeed. Other differences in maternal behavior (within class) seemed to be related to parental values.

The authors suggest that interventionists should encourage parents to recognize the influence they have over their children's development and to understand the consequences of various types of experience. Further, they must be careful not to insist that particular skills or traits they may value represent the one optimal pattern for everyone.

Wachs, T. D., Uzgiris, I. C., & Hunt, J. McV.
Cognitive development in infants of different age levels and from different environmental backgrounds: An explanatory investigation. Merrill-Palmer Quarterly, 1971, 17, 283-317.

This study was designed to investigate differences in the development of intelligence between disadvantaged infants and those of higher socio-economic status (SES), and to determine whether some specific home environment factors are related to cognitive development.

The subjects were 102 infants tested either in the 7th, 11th, 15th, 18th or 22nd month of life (that is, the study was cross-sectional not longitudinal, with different infants comprising each age group). Half of the infants at each age level were of lower SES (ranging from middle upper-lower class to lower-lower class; 84% were black), and the other half were middle class, matched for sex and age (mostly white). The Infant Psychological Development Scale (IPDS) consisting of six Piaget-based scales was administered in the home over two to three days. In addition, a modification of the Inventory of Home Stimulation (STIM) was completed; 27 of 72 items were based on observation, 45 on maternal interview.

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The results are discussed at some length for each test series and each age level. In summary, the disadvantaged children scored lower than the middle SES infants at least at one age point on object permanence, development of means, learning and foresight tasks, and vocal imitation. Of all the significant differences obtained, none favored the disadvantaged infants. It is suggested that the use of a wider range of SES (rather than a dichotomy) and more than a single score for development may account for the finding of SES related differences prior to two years, in contrast to most other research. It is emphasized that the cross-sectional nature of the data made the results specific to the age levels chosen, and replication with a longitudinal design would be advisable.

The analyses of home environment in relation to developmental score indicated that two kinds of home experience were consistently related to development. First, the intensity of the stimulation and the variety of change in circumstances to which the infant is exposed; and second, the opportunity to hear vocal signals for specific objects, actions and relationships. High intensity stimulation from which the infant cannot escape and involuntary exposure to an excessive variety of circumstances were negatively correlated with development scores at every age level. This suggests that indiscriminate stimulus bombardment rather than stimulus deprivation may be more of a problem for the disadvantaged child. A curvilinear relationship between level of stimulation and development may exist (as suggested in the notion of "the match" by Hunt). The finding that vocal and verbal stimulation of infants by their parents are positively related to cognitive development at 15, 18 and 22 months is consistent with some previous findings. In addition to the level of stimulation and verbal stimulation, at each age level several other items in the home environment were related to development, with the specific items varying with age. This provides further evidence for the "match" hypothesis (that there is an optimal level in the young organism's interaction with his circumstances).

Weiss, J. L., Grunebaum, H. U., & Schell, R. E.
Psychotic mothers and their children. Archives of General Psychiatry, 1964, 11, 90-98.

The relationship between psychological studies of twelve mothers and psychiatric ratings of the therapeutic usefulness of joint admission (having their infants with them in the psychiatric ward after the acute period of their illness) is reported.

Data from projective tests (Rorschach, TAT, Draw-a-Person) and clinical observation were obtained at some point during hospitalization for twelve mothers aged 20-37. They were also categorized according to a clinical staff member's judgment of the usefulness of the joint admission procedure (A = much, B = some, C = little). Five mothers were placed in category A, four in B and three in C.

The groups were found not to differ in terms of admission diagnosis, but the time of onset and the qualitative nature of the disturbance appeared to be related to certain enduring characteristics. A breakdown soon after delivery seemed more likely to occur in women whose personality organization was relatively primitive in libidinal development, defensive opera-

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tions and interpersonal adaptations. Mothers who seemed to benefit most from joint admission were those whose tests reflected signs of active, severe disturbance along with more developmentally mature conflicts and defenses, and who had had some previous relationship with the child.

Thus it appears that joint admission is not so likely to be helpful in early postpartum cases as for mothers who become ill somewhat later after the birth of their child. This is also when separation would seem to be most damaging to the child.

White, B. L.

Fundamental early environmental influences on the development of competence. In M. E. Meyer (Ed.), Third symposium on learning: Cognitive learning. Bellingham, Washington: Western Washington State College, 1972.

The rationale behind the Harvard Pre-School Project and some preliminary findings are described in this paper. The project is generally aimed at the study of the development of adaptive abilities or competence in the first six years of life, and in particular, the problem of how to structure the experiences of the first six years of life so as to encourage maximal development of human competence.

What constitutes human competence was determined by first selecting a broad sample of 400 three, four, and five year olds and then through observation and testing, isolating 51 children, half of whom were judged to be very high on overall competence, and half to be very low. After eight months of observation, the 13 most talented and 13 least talented children were selected, and a list of social and nonsocial distinguishing characteristics was compiled. The eight social abilities isolated included the ability to get and maintain the attention of adults in a socially accepted way, to express both affection and hostility to adults, to compete with peers, and others. The nonsocial abilities included linguistic competence, intellectual competence, executive abilities, and attentional ability, with subabilities listed in the second and third categories. Interactions among social, motivational and intellectual development were seen to be pervasive.

In order to study the etiology of competence in young children, instruments to assess competence and maternal behaviors had to be developed. Observation of over one hundred children led the staff to the conclusion that the well-developed three year olds performed more like four, five, and six year olds on the target abilities than did the older children who were developing poorly. Accordingly, the decision was made to concentrate on the zero to three year age range, but since previous research has indicated that developmental divergence does not begin until sometime during the second year of life, effort was finally focused on the development of competence during the second and third years. Measuring instruments developed included a task instrument for the analysis of ongoing experience, an interview procedure to study salient environmental factors, a scale to gauge social inputs to children, and an observational tool to assess the child's use of his physical surroundings. These instruments are described in the paper.

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A longitudinal natural experiment was planned to include 24 children studied for two years beginning at one year, and 24 studied for one year from age two. In each group, half of the subjects would have an older sibling judged to have attained high levels of competence (A families) and half would have an older sibling of lower than average competence (C families). To allow for attrition, the plan was to begin with 60 families. Over a 16 month period more than 15,000 families were screened, but as of December, 1970, there were still only 33 families in the study (13 one year olds, 20 two year olds; 21 A families, 12 C families; 16 of lower SES, 17 of middle SES). Data on the typical experiences of each subject are collected once every three weeks for six months of the year (30 protocols per child per year are obtained). Data on the child's social experience, his mother's interactions with him, and his use of his physical environment are collected at similar intervals. Fourteen tests of the development of competence are given during the second year of life and 15 or 18 are given during the third year.

Preliminary results on the language data indicate that A subjects score higher than C subjects and the difference increases with age. Data on the development of the ability to sense discrepancies indicate few differences during the second year, but among two year olds, A's scored higher than C's and the size of the differences increases with age. Bayley mental development scores for the 1A and 1C groups were not significantly different (104.5 vs 100.5), but when the same groups reached 24 months of age, a difference had appeared (127.0 vs 110.5). Among subjects who entered the study at two years of age, A's scored higher than C's (104.0 vs 86.0). For the nine A children tested at 36 months of age, the Binet mean IQ score was 138.0; for the five C children it was 92.0.

General data indicated that regardless of whether a child was developing well or poorly, he spent far more time oriented toward physical rather than social interaction (for one year olds, 88.1% vs 11.9%; for two year olds, 80.8% vs 19.2%). Also, the predominant experiences of most children were what was termed "gain information - visual", that is, staring steadily at one object or scene for at least three seconds.

Some educated guesses concerning differences between experiences of A and C children are discussed. At 12 to 15 months, social experiences appear to be similar, but C mothers seem to be characteristically more restrictive than A mothers. A children engage in more mastery behavior and are exposed to more live language (C children get the bulk of their language from television).

The author has become convinced of the special importance of the 10 to 18 month age range for the development of general competence, including cognitive ability. A family's capacity to rear children (particularly that of the mother) is tested by three major developments in this period: the capacity for receptive language begins to become substantial at about eight or nine months, the emergence of locomotor ability places stress on the primary caretaker, and babies begin to reveal a growing awareness of their separate identity (this is shaped through interactions with the caretaker) as well as a strong orienting tendency toward their mothers. It appears that the behavior of the primary caretaker is crucial, particularly in terms of how she copes with her infant when he reaches nine or ten months of age.

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Some characteristics of the most effective mothers' childrearing practices are described. While the most effective mothers by no means devote the bulk of their day to rearing children (even A mothers home all day spent less than 10% of their time interacting with their infants), they are excellent designers (of the child's physical world) and consultants (they usually but not always respond to his overtures). Some attitudes and values that appear related to a mother's effectiveness are her view of life in general, enjoyment of young children (or not), awareness of the formative role of the early years (few C mothers believe that this period has profound significance), concern for possessions (which is incompatible with allowing freedom to young children), acceptance of the idea that an infant and a spotless home are incompatible, and concern about safety for the infant (A mothers tend to accept more risks than C mothers). It is the author's impression that infants are generally more careful about protecting themselves than we think; caution is necessary but there is a mid-ground with regard to safety. Perhaps the most basic necessary resource for excellent childrearing is energy.

Yarrow, L. J.
Research in dimensions of early maternal care. Merrill-Palmer Quarterly, 1963, 9, 101-114.

It is noted that while there has been consensus that the most significant influence in the early environment is the infant's relationship with his mother, little research attention has been given to analysis of specific interactional variables.

In choosing variables for attention in the study reported, consideration was guided by infant sensitivities as well as an empirical analysis of three major maternal functions: the mother as a) a source of social and sensory stimulation, b) an agent of need-gratification, and c) as mediator of environmental stimuli. In addition, homes were rated on exclusiveness of maternal care (single vs multiple mothering). The dependent variables were infant personality characteristics and developmental functions assessed at six months of age.

The subjects were studied during the course of a longitudinal study of personality development in adopted children. For these analyses, children in only one home for the first six months of life were included; 21 were direct adoptive placements and 19 were in foster homes. The results were striking in the extent to which they implied that developmental progress during the first six months is influenced by maternal stimulation. Stimulus-adaptation ($\underline{r}$'s of .56 to .85), achievement stimulation (.23 to .72), social stimulation (.37 to .65), communication (.39 to .59), and positive-affective expression (.53 to .55) showed consistently high relationships with infant characteristics of IQ, handling stress, exploratory manipulative behavior, and social initiative. Maternal variables of emotional involvement, acceptance-rejection and respect for individuality were related to the infant's capacity to cope with stress ($\underline{r}$ = .57 to .65) but less related to developmental progress. Amount and quality of stimulation were both hightly related to IQ ($\underline{r}$ = .65 to .72) as was stimulus-adaptation ($\underline{r}$ = .69) indicating that appropriateness of stimulation was important. Maternal consistency, a variable receiving considerable popular emphasis, was found to be only minimally related to infant variables. The author suggested that perhaps a minimal level of consistency is sufficient as well as necessary for the infant to be able to relate to his environment, and too much consistency may not be desirable.

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Infant autonomy and adaptability were found to have low-positive or negative relations to the maternal variables, suggesting that they may reflect basic predispositions with constitutional determinants.

Data suggesting the importance of recognizing the impact of the child on the mother, rather than just vice-versa, were cited. Case studies described the existence of different interpersonal relationships between the same foster mother and different infants at different points in time, and also between the same foster mother and different same-sexed, same-aged infants at the same point in time.

While the data relating maternal caretaking variables to infant characteristics are compelling, it should be noted that they reflect the same period, at six months. A significant relationship between stimulation conditions and IQ at six months is less surprising if the IQ measures focus on responses to similar stimuli. Whether later IQ is related to early stimulation remains an important question.

Zern, D.
The influence of certain child-rearing factors upon the development of a structured and salient sense of time. Genetic Psychology Monographs, 1970, 81, 197-254.

The hypothesis that childrearing in the first year of life which is relatively frustrating (within viable limits) will help to produce an adult with a relatively structured and salient sense of time was tested both cross-culturally and longitudinally. Based on Freudian theory, Bergler and Roheim contended that to the extent that the unseparable bond between mother and child is weakened, an accurate and adequate perception of time becomes one stable result. Zern modified that hypothesis and argued that indulgence-frustration of the infant is crucial to development of the sense of time salience, regardless of the source of that experience.

Working from ratings made by Bacon, Barry, & Child on the overall indulgence of 101 societies, and adding constraints related to information on calendrical variables and linguistic diffusion, 47 societies were rated on eight childrearing variables and six symptoms of time salience (e.g., a developed calendar of about a year's length, a series of dates regularly recurring and of special ritual significance). Using Guttman Scaling, an overall score (1-8) for each society was obtained. The correlation between the time variable and overall indulgence was -.441 ($p < .001$). Other variables were also examined. The basic relationship was found to hold significantly for Eurasia, Oceania, North America, and South America, but not for Africa. Presence of a nurturant figure was found to be not nearly as important as general indulgence, and consideration of later childrearing practices indicated that they were unimportant in comparison with initial general indulgence.

For the longitudinal study, data from the Fels Research Institute were used. Ratings based on recorded naturalistic observations were made for each subject on 12 childrearing variables. Ratings of TAT protocols obtained for 12 cards at 14-1/2 years of age were made for salience of time structuring in the story. Findings were more clear-cut for boys, with a correlation of time with immediacy of time reduction of -.547, and with degree of drive reduction, consistency of drive reduction and overall indulgence of -.372, -.353 and -.335

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respectively. For girls the only significant relationship indicated that girls with little feeding schedule had a low sense of time ($r = -.390$), and other evidence supported the inference that salience of time for girls is influenced by factors other than indulgence in the first year more than is the case for boys.

Generally, the results indicated that measures of cultural complexity did not predict time salience nearly as well as did more psychological factors, and neither socio-economic class nor general intelligence predicted time salience as well as did childrearing.

The author interpreted the results related to sex differences as an indication that girls are more subject to the influences of their immediate environment than are boys.

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IV INFANT EDUCATION, INTERVENTION, AND DAY CARE

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Abt Associates, Inc.
A study in child care 1970-71. Cambridge: Author, 1971.

Under a contract from the Office of Economic Opportunity (OEO), Abt Associates, Inc. undertook a study to seek out and describe formal child care arrangements of good quality, and to investigate the cost of reproducing the centers and home care arrangements of those they visited.

The report consists of four volumes. From 40 centers visited, 20 were selected for in-depth study. Of those 20, 7 are child care systems (some including home care) and 13 are center programs. Case studies of the 20 centers, cost and quality issues, and the research strategy are described in detail in Volumes II, III, and IV of the report. Volume III also includes three center designs, for 25, 50, and 75 children. The first volume provides an overview of the study.

Some general findings of the study are: 1) There is no one kind of quality care; it comes in many forms. 2) Good care is now being provided by a wide variety of sponsors (religious groups, migrant camps, inner-city community organizations, private industry, welfare departments, etc.). 3) Good child care is hard to guarantee; the one common thread seems to be enormous human effort. A child care center is its director and staff. 4) Good child care is expensive. Costs in this study ranged from $1,200 to $4,000 per child per year, and no center cared only for infants, who as a group are generally more expensive.

Some specific findings are also discussed. Children in the "good" centers are generally happy, cooperative and self-reliant; the adults in these centers are responsive, supportive and warm. Most children spend between six and ten hours a day in a center, typically divided into groups ranging from 8 to 21 children. The staff-child ratio was found to be a principal indicator of good care. Larger centers seemed to have more difficulty in maintaining warmth. Formal educational qualifications were not found to be associated with excellence of staff; recruitment of warm and responsive teachers was thought to be crucial. The directors of child care centers are very important to the success of operation. Parents were found to be involved in programs in a variety of ways. In some centers parents participated in policy decisions; in others they acted as advisers; and in some centers they played primarily a social role. While larger centers were found to cost a little less per child, it also seemed to be more difficult to provide quality care in a large center, even with a favorable child-staff ratio. Home care systems offered warm, secure care which was almost always very near the children's homes, but was in general, almost as expensive as center care (exceptions were infants, mildly sick children, children with special problems, and those in hard-to-reach areas). Home care was also found to be seriously underfunded; the mothers providing care were paid far less than

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federal minimum wages. Home educational programs were slim. On the average, almost one-quarter of the resources used by centers were not paid for; volunteer workers accounted for the major portion of these unpaid resources. While all centers were past the start-up phase, it was indicated that at least one aggregate person-year of work is needed to get a center going. The investigators concluded that, in general, quality child care is not profitable. They comment that it is clear that child care may be a social good appropriate for public support.

Of the 20 programs studied, only 6 provided care for infants, and 10 for toddlers, and none exclusively served that age range. Of the 13 centers studied in detail, the following three served infants: 1) The AVCO Day Care Center in Massachusetts serves the Roxbury-North Dorchester community. It was begun by the AVCO printing plant for employees but now serves the community; 34 children are served in the program which emphasizes social-emotional development. Of the six staff members, five are black and two are young men. 2) The 5th City Pre-School Center is an integral part of the 5th City Community Reformulation Experiment on the west side of Chicago. The program is designed to help deprived children from poverty areas to cope with the world. The staff works with what they have (facilities, space, equipment and materials are all inadequate) to serve the 197 children in pre-school and after-school programs. The center has developed a curriculum and methodology to meet the specific educational needs of deprived children. 3) The Children's Center at Syracuse University is a research and demonstration center and has been described in detail elsewhere in these abstracts.

Three of the seven child care systems surveyed served infants. 1) The Family Day Care Career Program is a system of organized home care located in New York City. Each of 21 sub-centers administers 40 to 60 homes in the neighborhoods served. A central office provides technical support. Family Day Care is a unique community of people who have bonded together to help each other. Licensed day homes enrolled six children, including those of the teacher mother. The educational program is severely limited, but educational aides from the sub-centers help each mother eight hours a week. This system accepts about 100 to 200 new children each month (with a waiting list of about 800). About 3500 children are served. 2) The Neighborhood Centers Day Care Association is part of a welfare organization in Harris County, Texas. Eight day care centers and 179 day care homes serve about 1000 children. The program has operated for 18 years. While many educational and curriculum materials are available to the centers, administrative emphasis is on the development of the "whole child". 3) The Northwest Rural Opportunities (NRO) day care system is operated under an umbrella migrant organization (NRO). Nine day care centers are scattered throughout six counties in eastern Washington State. The system uses 21 trailers specially designed for and built at a cost of $9,000 to 10,000 each. A curriculum directed specifically at the learning and language development problems of migrant children has been developed by NRO's child development specialist and two outside consultants. Seventy percent of the project's staff is drawn from the migrant community and is receiving in-service training.

Considerable detail about the programs and their costs (carefully broken down) is available in the full report.

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American Academy of Pediatrics

Standards for day care centers for infants and children under 3 years of age. Evanston: Author, 1971.

The Committee on Infant and Preschool Children of the American Academy of Pediatrics has developed basic standards for quality day care for children under 3 years of age. There are at present no federal laws setting standards for day care. State laws vary considerably, and most have been adapted for day care from laws designed for other situations (for example, nursing homes). The standards described in this American Academy of Pediatrics booklet were intended to be basic standards only; recommendations which would promote further improvement of services will be written as a supplement to these standards.

The standards are written to cover basic principles, administration, personnel, records, program, health services, nutrition, and facilities for day care centers for children. Sections or chapters of the publication are devoted to each of these topics. While most of the suggested procedures are advocated by almost all of those who discuss quality day care programs, some of the recommendations involve particular stances on issues that are considered to be somewhat controversial. An example is the recommended policy concerning ill children. Current research indicates that children who are ill generally have harbored the infectious agent for several days prior to its first appearance as a symptomatic illness. It is therefore recommended that children who are ill be cared for in the center at the mother's discretion. At the same time, the basic standards include provision of a "separation area" equipped with one crib for every 20 or fewer children, presumably for children who are ill or require a particularly quiet place to rest. Another topic of controversy concerns staff wearing apparel; these standards state that "frequent changing of clothing and the wearing of special scrub gowns or other similar attire designed to prevent the spread of infection is thought to be unnecessary and should not be required" (p. 2).

Some of the points emphasized in the standards include the importance of in-service training for all staff; consultation on policy and procedures, on implementation of the daily program, and on personnel training; and parent involvement in both general and individual program planning. A ratio of one staff member for every four children under 3 years of age is mandated, and it is recommended that the same adult care for the same child. A single, ready-to-feed formula (unless medically contraindicated) is advised. A baby should be held for bottle feeding, and be fed according to his individual schedule by the same person. In general, the standards are concerned with requirements of a more concrete sort. It is, however, noted that patience, warmth, ability to set limits, a positive personal self-image, and flexibility in reaction to and knowledge of different expressions of behavior are important qualities for staff. Planning ahead of activities for children is advocated. Also recommended for attention are motor activities, visual-motor coordination, language development, other communication skills, direct experience with materials and people in the center and community, activities encouraging the development of curiosity and exploration, and activities which foster social and personal growth through individualized care by consistent mothering figures.

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Appalachian Regional Commission
Programs for infants and young children, Part 1: Education and day care. Washington: Author, 1970.

This booklet is a collection of descriptions of various types of programs for young children that were in operation at the time of the publication, seemed to be effective, and contained elements that could be used easily in many communities. The list was intended to provide examples of programs, and does not include all such programs in existence. Some of the material is now out-of-date since most programs change continually and some are relatively short-lived (particularly research programs). Each program summary includes a discussion of program objectives, description, effectiveness, and replication. Sources of further information are also included.

The programs are grouped into several categories. Those included in the first category, "Comprehensive Programs", are: Children's Center (Syracuse, New York; director: B. Caldwell, 1964-1969; R. Lally, 1969-present), the Child Study Center (New Haven, Connecticut; director: S. Provence), the Frank Porter Graham Child Development Center (Chapel Hill, North Carolina; director: J. Gallagher), the Institute for Child and Family Development (Greensboro, North Carolina; director: M. Keister), the Hough Parent and Child Center (Cleveland, Ohio; director: R. Johnson), two other Parent and Child Centers (described anonymously), the Head Start program, and the Follow Through program. All but the last two projects in the comprehensive category serve infants (most also serve older children).

The second category, "Education Programs", is divided into home programs and early learning center programs. Included in the home education program section are the Infant Education Research Project (Washington, D. C.; director: E. Schaefer), the project of the Institute for Development of Human Resources (Gainesville, Florida; director: I. Gordon), the Mobile Preschool (Beverly Hills, California; director: R. Lipson), the Preschool Education Project (Charleston, West Virginia; director: R. Alford), the Toy Lending Library (Berkeley, California; director: J. Hemphill), the Verbal Interaction Project (Freeport, New York; director: P. Levenstein), and the Ypsilanti-Carnegie Infant Education Project (Ypsilanti, Michigan; directors: D. Weikart & D. Lambie). The first two and last two projects listed include infants. The section on early learning center programs includes the Academic Preschool (Champaign, Illinois; directors: C. Bereiter & S. Engelmann), the Ameliorative Preschool (Champaign, Illinois; director: M. Karnes), the Children's Centers (Santa Monica, California; director: D. Zavitkovsky), the Perry Preschool Project (Ypsilanti, Michigan; director: D. Weikart), the Demonstration and Research Center for Early Education (Nashville, Tennessee; director: S. Gray), the Harvard Infant and Preschool Projects (Cambridge, Massachusetts; director: B. White), and the project of the Institute for Child Development and Experimental Education (New York City; director: F. Palmer). The first, second and fourth projects listed serve children three years of age or older; the third and seventh programs include children two years of age. Infants are included in the fifth and sixth projects.

The third program category is "Services for the Mentally Retarded and Others with Special Needs". It includes descriptions of the Bowen Protective Services Center (Chicago, Illinois; director: G. Penner), Day Care for Mentally Retarded Children (Harlan, Kentucky; director: J. Weatherby), Grandparents for Children (Nashville, Tennessee; director: J. Thune),

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High School Courses for Future Parents (such courses in eight U.S. cities are described; some of the high schools also have nurseries or day care centers), Home Services for Retarded Parents and Children (three programs are described), the John Tracy Clinic (Los Angeles, California; director: Mrs. Spencer Tracy), and the Northwest Michigan Child Guidance Clinic (Traverse City, Michigan; director: J. Young). These programs provide special services to children of varying ages.

A fourth category, "Programs Available on the Open Market", includes descriptions of commercial day care (several enterprises), cooperative preschools, day care for working mothers (the KLH Child Development Center and other industry-sponsored centers), and a family day care system (Rochester, New York; director: [illegible]. Foley).

The fifth category includes some generalizations about group care for infants and an appendix which lists a variety of materials, films, and sources of technical information.

* This book provides the reader with brief descriptions of a great variety of programs for young children. Other written information concerning most of the programs is quite limited.

Arnote, T. E.
Learning and teaching in a center for the care of infants and toddlers. Unpublished manuscript, University of North Carolina at Greensboro, 1969.

The author provides a detailed account of the experiences concerning staffing of the demonstration project designed to provide a model for quality care of infants in groups which is located at the University of North Carolina at Greensboro and is directed by M. E. Keister. The article includes a brief description of the center, and discussions of how non-professional staff are employed and oriented to the job, how the staff works together, what provision is included for staff education and meetings, and some idea of the content for staff study. Examples of the cue cards for the children, daily care sheet, emergency forms and physician health certification are included.

Barbrack, C. R., Gilmer, B. R., and Goodroe, P. C.
Information on intervention programs of the Demonstration and Research Center for Early Education. DARCEE Papers and Reports, 1970, 4, (No. 6).

This paper provides an overview of the numerous and wide-ranging intervention efforts being undertaken by the Demonstration and Research Center for Early Education, John F. Kennedy Center for Research on Education and Human Development, George Peabody College

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for Teachers, Nashville, Tennessee. The central mission of the project is to develop knowledge which will lead to improving the educability of young children. The emphasis is on those from low income homes. The first assumption is that young children can learn skills and behaviors which will accumulate and provide a more adequate basis for acquiring a repertory of effective ways of dealing with every day living. Experience is thus seen as a major factor in influencing learning. The second major assumption is related to subcultural differences; the thrust is to look at the specific skills which children will be expected to acquire in order to learn how to learn. The mother is seen as the key agent in a child's acquisition of motivation to learn; it is also recognized that she may have to concern herself so much with subsistence that she may be unable to be concerned with her family's educational problems or potential.

The total number of children in DARCEE programs from 1965 to 1970 was 2,251; of these only 31 were below 2 years of age. All were of low-income, and 553 of the 2,251 lived in urban settings; the rest were rural. Parents and siblings were also involved in several programs.

The DARCEE program is organized in terms of attitudes toward achievement and aptitudes for achievement; the curriculum has been adopted and disseminated in a variety of settings. The aptitude development curriculum consists of approximately fifty skill areas, falling into 3 broad categories: 1) those necessary for perceiving and decoding stimuli: 2) those used in organizing and integrating stimuli; and 3) those required in encoding the product of the decoding and organization processes. Each skill is sequenced vertically along a continuum from a gross, general level to a specific level, and at each level, the skill is programmed horizontally from the concrete to the abstract. Attitude development is encouraged by inclusion of reinforcement, culturally relevant materials, frequent use of the child's name, teaching persistence, etc. Development of language skills, social skills, and physical development are all stressed. Nutrition and medical care are also emphasized and studied in relation to development.

The essential components of a DARCEE preschool program can be summarized as temporal order (scheduling), spatial order (physical setting organized), grouping (flexible, small groups at certain periods), use of paraprofessionals as well as professionals, daily planning and evaluation, reinforcement and behavior management, aptitude development, attitude development, content units, and a home visitor program to help mothers become better educational change agents for their children. The classroom curriculum is developmental rather than remedial.

Several training programs for parents constitute the primary mode of parent involvement. This approach has the advantage of reaching several children (in each family) for each intervention target. Also, many preschool programs have found gains washed out with time; by training mothers this can be avoided. While the home visit method is the primary way of reaching mothers in this project, mothers have also been introduced into classrooms.

With regard to evaluation, a variety of measures have been used, including standard tests, tests developed by the project, and ecological procedures for assessing interaction and home environments. In general, pretest-posttest designs have been used. Most of the intervention occurs over 40 week periods.

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This overview of DARCEE projects also includes a list of preprints describing the program and research results. A chart provides a picture of the ways in which the various projects relate to one another.

Barbrack, C. R., & Horton, D. M.
Educational intervention in the home and paraprofessional career development: A first generation mother study. DARCEE Papers and Reports, 1970, 4 (No. 3).

This report describes a small follow-up project designed to test the feasibility of using mothers' skills acquired in a previous project as a basis for building a "career ladder" in early education. Four mothers who had been in the maximum impact group of an earlier project were trained as home visitors. In the previous project, they had been trained to participate in a preschool program and had also received home visits designed to help them become more effective educational change agents for their own children. Following their selection for the new project, they received 24 hours of pre-service training, including an overview of the intervention rationale and review of the home visit procedures and materials. They were phased-in one each week for four weeks. The subjects were eight girls and four boys, ranging in age from 40 to 64 months at the post-testing and their families, all black and living in a low-income Nashville, Tennessee, housing project. A comparison group was post-tested; they came from the same housing project. Each family was visited for about one hour each week for about 40 weeks.

The Stanford-Binet (S-B) and Peabody Picture Vocabulary Test (PPVT) pre-post test scores were not significantly different. The DARCEE Concept Test for Children indicated significant gains in Matching, Recognition, and Identification. Since these gains could have included maturational gains, scores were compared with the comparison group's scores. The Treatment group scored higher on all 3 subtests, but significantly so on Identification only. The results also indicated that Matching, Recognition, and Identification skills form a developmental sequence.

The Home Visitors seemed to have profited a great deal from the experience, but data were of the impression and hunch variety. Two of the Home Visitors (previously unemployed) dropped out after pre-service training because they had obtained Teacher-Aide positions in the public schools. Such events are positive, although perhaps difficult for research projects.

* In the sense that this project was designed to determine the feasibility of using previously served mothers as intervention agents, the subjects of this study were not infants, instead the subjects were the Home Visitors. This project provides an illustration of the ways in which mothers (and perhaps grandmothers) could be trained to work with young children and their families.

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Bracken, M.
Lessons learned from a baby care club for unmarried mothers. Children, 1971, 18, 133-137.

The author, a social worker, describes her experiences working with six unmarried teenage mothers in a Baby Care Club. The meetings consisted of six one-hour sessions held at the Yale-New Haven Hospital, and were designed to function as a short-term group experience, helping the mothers to fulfill demands placed on them in relation to motherhood as well as meeting some of their own needs and improving their self-image.

Of 17 girls in the 15- to 17-year age range who had delivered babies and seemed likely to benefit from such a club (based on staff evaluations, school attendance, etc.), only six accepted a personal invitation (followed by a personal visit). Three had moved, three could not attend because of schedules, and five were not interested. Transportation was so much of a problem that the social worker ended up providing it. Public transportation was not a good solution and no community group could be interested in performing this service.

Each meeting focused on a specific topic of mother-child interaction, with specialists attending most of the meetings. The sessions on how to care for babies and toy demonstration were particularly of interest and the author would in the future recommend an entire meeting on family planning. How babies learn appeared to be important to teach in small increments, and day care was recommended for treatment in the larger context of concerns of working mothers.

The author did feel that the club had a positive effect on peer relationships, particularly in view of the emotional isolation and lack of friends typical of these young mothers. However, she did experience considerable difficulty and frustration in involving them. She also felt that the mothers would have been helped more by including a person knowledgeable about child development in the meeting. She thought that a hospital provided a less than ideal meeting place.

Caldwell, B. M.
Descriptive evaluations of child development and of developmental settings. Pediatrics, 1967, 40, 46-54.

The importance of evaluation in conjunction with intervention is discussed. The author notes that there is a general wariness of evaluation, but this seems misplaced since intervention itself is judgmental.

One difficulty with evaluation instruments is their tendency to assess basic or general processes, while intervention may have been designed to accomplish more specific, restricted goals. However, if one viewed intelligence as something that emerges, that is, a level of performance which is affected by experience, then interest would become focused on description rather than on diagnosis. For intervention programs it would be most useful to have developmental evaluations which are descriptive and provide an indication of past experience.

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The Preschool Inventory, developed by the author for use with Head Start, is such an instrument. This instrument attempted to summarize for mass data processing the kind of output of which a group of children was capable under a particular set of circumstances. Given to 648 children aged two to seven years, the results indicated that at the early ages, the total-score medians for 196 middle-class and 452 lower-class children were not widely separated, but by age five, the norms for lower-class children were almost 1-1/2 years behind those for middle-class children.

In addition to the need for descriptive evaluation of current developmental functioning, there is a need for such description of the environment in which the development occurred. The Inventory of Home Stimulation (STIM) was developed for that purpose. The items cover 1) frequency and stability of adult contact, 2) amount of developmental and vocal stimulation, 3) need gratification, 4) emotional climate, 5) avoidance of restriction, 6) breadth of experience, 7) aspects of the physical environment, and 8) available play materials. It is designed for families of children ranging from birth to three years. About two-thirds of the items are based on observation (made during a home visit), the rest on an interview with the mother. While results do indicate significantly lower average scores for lower-class homes, they are most notable in demonstrating a wide range of scores for both lower-and middle-class homes, and a bi-modal distribution for lower-class families. When STIM scores were correlated with Cattell Infant Intelligence Scale change scores obtained at six months and one year, the correlation was .87 ($p < .001$).

Finally, there is need for description of both the child and his environment, in interaction. For intervention, we need to know if an experience designed to be enriching is truly so. The APPROACH (A Procedure for Patterning Responses of Adults and Children) system was developed for this purpose. The author provides an example of a comparison between the home and school experience of a particular child with his primary caretaker in each location.

Caldwell, B. M.
What is the optimal learning environment for the young child? American Journal of Orthopsychiatry, 1967, 37, 8-21.

In this paper the author questions the apparently prevalent assumption that the optimal environment for the young child is one in which he is cared for in his own home in the context of a warm, continuous emotional relationship with his own mother under conditions of varied sensory input. She questions some of the hidden assumptions on which this principle rests. 1) Do intermittent, short-term separations of the child from the mother impair the mother-child relationship or the development of the child? The answer, based on preliminary research seems to be no. The deleterious effects of institutionalization are not relevant here because in most cases there was no stable mother-child relationship to begin with, and separation was also not temporary. 2) Is group upbringing invariably damaging? One problem in evaluating the group care situation is in isolating the most important ingredients of the setting; in the past, most group care settings have been depriving. Ones which have not, for example, kibbutzim,

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reinforce the premise that it is not group care per se that is damaging. 3) Is healthy socio-emotional development the most important task of the first three years? Do attempts to foster cognitive growth interfere with social and emotional development? These assumptions seem based on a compartmentalized view of development; the author prefers the notion of general competence or effectance as a major stabilizing force in personality development. 4) Do cognitive experiences of the first few months and years leave no significant residual? The general finding that early measures of intelligence do not predict to later intellectual development does not mean that the early years are unimportant for cognitive development; more likely, they indicate discontinuity in measurement. 5) Can one expect that, without formal planning, all the necessary learning experiences will occur? People working with children whose histories are deficient in many categories of experiences are increasingly convinced that such children often are not able to avail themselves of educational opportunities and must be guided into meaningful learning encounters. 6) Is formal training for child-care during the first three years unnecessary? By proclaiming in one breath that mothering is essential for the healthy development of a child we should not (but often do) imply that just any mothering will do. 7) Are most homes and most parents adequate for at least the first three years? While parents have been blamed so much for the later difficulties of their children, parental inadequacy during the first three years is seldom considered to be a major menace. The author suggests, however, that the first three years of life should not be regarded as any more beyond the domain of social concern than the other periods of development.

Unfortunately, data concerning possible alternate models of care are insutficient. The author cautions against the tendency to make binary choices - individual vs group care, foster home vs own home, etc. One thing is clear; more mothers are working, and demanding innovative action in the field of child care. One interesting problem concerns a title for the mother-supplement role (nurse, teacher, child-care worker, etc.). The author would hope for a title which would emphasize the nurturing role.

Throughout the article, research relevant to each of the points being made is cited.

Caldwell, B. M.
The rationale for early intervention. Exceptional Children, 1970, 36, 717-726.

The author discusses some of the impetus behind the rise in interest in early education as well as some of the issues involved.

Three bases for inferring the importance of early intervention are discussed. First are animal studies on the effects (both of kind and timing) of early experience. Developmental studies of children reared in different environments are also discussed, with mention of the Bayley scale standardization data indicating no significant differences as a function of sex, birth order, parental education, geographic residence or pace on the mental scale up to 15 months of age, and the significantly better performance of Negro infants over Caucasian infants on the motor scale up ro 12 months of age. Thus research points to the period of 18 months to 3 years as the point at which differences related to background begin to appear.

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What is needed is identification of the specific features of environments which lead to such differences. Finally, major conceptual analyses of the role of experience in human development, such as those of Hunt and Bloom, have provided further impetus for focus on early childhood.

Empirical rationale for early intervention comes from the work of Skeels and Dye, who did a follow-up study on two groups of orphanage babies, one having received stimulation beginning at age 3 from retarded females and one without such experience. After about 19 months of such stimulation, the experimental group's mean IQ gain was 28.5 points, while the mean for the contrast group fell 26.2 IQ points. More importantly, 30 years later, the divergent patterns of competency had been maintained. The second study cited is Kirk's comparison of retarded 3 to 6 year olds who received preschool experience with similar children who did not; the differences were significant. The author states that enrichment programs beginning after six years have been much less successful.

Some early education projects are reviewed. Gray's Early Training Project (consisting of summer preschool programs), Caldwell's Syracuse project, and others are mentioned. The author notes that the consistency of results obtained with different groups, different approaches and different samples is most striking.

Clearly, early childhood education is important. The author notes four obligations related to such programs. The first is that researchers must do follow-up studies to determine long-range effects of intervention. Second, gains associated with preschool programs will not continue unattenuated unless subsequent educational endeavors are as individualized, carefully executed and meticulously planned; therefore, continuity is needed. Third, careful program description is bady needed, otherwise nothing can be concluded about effectiveness. Fourth, priorities must be assigned so that funds are not diverted from later to earlier educational programs; increased allocations at all ages are needed.

Caldwell, B. M.
Impact of interest in early cognitive stimulation. Unpublished manuscript, 1971.

In this paper, programs of stimulation (day care, home tutoring, parent education, etc.) for very young children are discussed. Several major social realities are forcing interest in early childhood programs. Large numbers of children perform so poorly in school that they do not attain a minimal level of competence and attempts to ameliorate educational deficits have followed a steady age regression. Increasing numbers of women with preschool children are entering the work force, in spite of warnings that such a trend might jeopardize the emotional health of their children. The theoretical antecedents of the current interest in early cognitive stimulation include animal studies dealing with the effects of early experience, and developmental studies of children reared in different environments. The latter category includes studies of the relationship between socio-economic status (SES) and development; the author reviews several such studies which point to the period of roughly eighteen months to three years as being the time at which significant differences in cognitive level and style begin to

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distinguish children from relatively privileged and underprivileged backgrounds. Also reviewed are studies in which effects associated with interpersonal social deprivation were examined, including the Skeels and Dye follow-up of orphanage children who received extra stimulation from female retardates. A third antecedent of interest in early childhood programs has been major conceptual analyses of the role of experience in development, particularly those of J. McV. Hunt, B. Bloom, and J. Bruner. A final determinant has been political and economical; recently, fairly substantial sums of money have become available for both research and programmatic action.

The current status of programs concerned with the cognitive enrichment of children under three is discussed. The author classifies these programs as being omnibus (attempting to provide more than one pattern of service), parent-oriented (offering tutorial or group experience for parents with the clear intent of having an impact on the child by changing parent behavior), or child-oriented (enrichment is presented exclusively to the child). Brief descriptions and some results from selected programs of each type are discussed. Omnibus programs described including the Children's Center in Syracuse, N.Y. (of which the author was director from 1964-1969), and the Parent-Child Center Program. Parent-oriented programs described are the Parent Education Program in Gainesville, Florida (directed by I. Gordon), and the Mother-Child Home Program, Freeport, N.Y. (directed by P. Levenstein). Child-oriented programs described are the Structured Tutorial Program in Champaign, Illinois (conducted by G. Painter), the Infant Education Research Project in Washington, D.C. (conducted by E. Schaefer) and the Harlem Research Center of the City University of New York (directed by F. Palmer). All of these programs are described along with some of their results elsewhere in these abstracts.

The work on infant enrichment has led to several major conceptual advances in the field of child development. One is the recognition of the importance of examining the learning environment. Another conceptual advance has been a new look at the intervention process. The importance of quantity of stimulation, mothering, contact, peer interaction during infancy, contingent responsiveness, and attachment to caretaker have all been mentioned in the literature, but as recently as 1964 these were merely cues which suggested what intervention for infants might be like. Even now, such important variables as the extent of structuring in the program, size of groups, ratio of children to adults, homogeneous or heterogeneous age grouping, parent involvement, sex of caretakers, and length of program have not been studied by comparing various intervention programs for very young children. When programs for older children have been compared, the results have been somewhat equivocal. The author advocates pooling information across infant programs, because of the small number of children in each.

Methods of investigation and measures are discussed. The author suggests that the development of new instruments (such as the Bayley Infant Intelligence Scales) will stimulate study and provide much needed information. Scales for assessing the environment and interaction are also mentioned.

It is suggested that programs designed to influence development in infancy will inevitably have a significant impact on the understanding of behavior disorders; the point is illustrated with some comments about the maternal deprivation syndrome.

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While basic scientific questions about infancy are still being asked, they are now more likely to be couched in terms of their implication for human welfare (for example, what is the optimal balance between familiarity and novelty in the daily life of the infant?). The author feels that a by-product of the current interest in infant programs will be the opportunity to answer some basic questions.

Caldwell, B. M.
What does research teach us about day care - for children under three?
Children Today, 1972, 1, 6-11.

The need for infant day care is documented, along with some of the reasons for the increasing demand (women's liberation, young mothers returning to school, the need for favorable environments for children). Another impetus behind the growth of day care for very young children was the growing recognition among those in the field of human development, that a child needs a certain amount and quality of experience during the first three years of development.

The research findings on infant day care are just beginning to come in. Studies relating day care experience to intellectual development (the criterion most often used, since it is the only area in which measurement scales are available) show that in general, children are not harmed, as many researchers had feared, and in fact, many children benefit from such exposure. The Syracuse Children's Center found gains, and the Greensboro Demonstration Project (serving a more middle-class population) showed no differences.

The Yale Child Study Center, under the direction of Sally Provence, has been addressed largely to effects of day care on social and emotional development, but results are not yet available. One aspect of social and emotional development, attachment, was studied in the Syracuse day care children. The results indicated that in terms of strength of attachment, day care children were as attached to their mothers (and vice-versa) as home-reared children. It should be noted that all children in this study were at least six months old when they began center day care.

The effects of day care on children's health is an important question. The Frank Porter Graham Child Development Center in Chapel Hill, N.C. has studied respiratory illness in about 100 children over a five-year period; the average incidence was 8.9 illnesses per child per year, with 10 per year found for children under one year. Children from a large metropolitan community had an average of 8.3 illnesses per year for one-year-olds and 7.4 per year for two- to five-year-olds. It should be noted that in the Chapel Hill program, ill children were not isolated. These encouraging data were, of course, from a high quality program which strove for optimal conditions.

One very important question concerns the effects of day care on parents, but no objective data are yet available. Most programs have, however, attempted informal evaluations of effects on parents, and reactions are usually positive. Infant care directors find that while parents may complain about such things as hours, fees, and other administrative details, they are usually enthusiastic about the ways in which the program helps their children.

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Experience abroad has indicated that it is better to locate day care centers near the children's residence rather than the mother's place of work, and small neighborhood centers are preferred over large central ones.

Unfortunately, figures on the costs of group infant day care are elusive, in part because the first and most well-known quality infant care centers have also been research projects, and therefore have considerable additional expense. More objective information concerning the effects of infant day care on both infants and families is needed, so that such services will be able to justify their claim on public resources.

* The first issue of the journal Children Today, (formerly Children) in which this article appears, is devoted entirely to day care.

Caldwell, B. M., & Smith, L. E.
Day care for the very young - prime opportunity for primary prevention. American Journal of Public Health, 1970, 60, 690-697.

This article provides a description of the Children's Center group day care program in Syracuse, New York, during the period 1964 (when it began) to 1969.

In 1969, there were 65 children enrolled, grouped developmentally, but roughly categorized as babies, ones, twos, threes, and fours. The child-caretaker ratio in all groups was 1 to 4. Children entered the program at varying ages, but the youngest were six months; a few middle-class families were served, but most were poor. From year to year, parent involvement in extent and manner varied, and was left somewhat for the parents to determine. While the program functioned as a secondary social agency, some families did receive considerable individual assistance from center personnel.

Early results indicated that the main role which participation in such a program seems to serve for young disadvantaged children is to normalize the distribution of intelligence scores. Scores appear to increase in the range of 10 to 14 points during the first year in the program and 3 to 5 points during the second year. While the samples were too small for generalization, there was some evidence that the middle-class children showed the greatest gains. A preliminary study of emotional adjustment indicated no tendency for a child to be classified as relatively well or poorly adjusted at four years as a function of his age when he entered the program. Early enrollment (but with a minimum age of six months) therefore did not appear to have been accompanied by emotional stress.

Caldwell, B. M., Wright, C. M., Honig, A. S., & Tannenbaum, J.
Infant day care and attachment. American Journal of Orthopsychiatry, 1970, 40, 397-412.

This study was designed to determine whether there are differences in child-mother attachment and mother-child attachment between a sample of home-reared children, and a

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sample of children who have participated in a group day care program since infancy. This question is a source of major concern for those critical of programs for group care of infants.

Subjects were 23 home-reared children and 18 (four boys and fourteen girls) who had been enrolled the Children's Center (Syracuse, New York) from the time they were about one year old; assessment was done at 30 months. Home STIM scores (descriptive of the stimulation potential of the home) were comparable for the two groups, although the day care group was somewhat more "disadvantaged".

An intensive, semistructured interview with the mother was used to obtain ratings for both mother and child on affiliation, nurturance, hostility, permissiveness, dependency, happiness, and emotionality scales; these provided the operational definition of attachment. A home visit was made to provide a STIM score and developmental examinations using the Stanford-Binet or Cattell scale were conducted.

There were no significant differences between the Home and Day Care groups on any of the child-mother attachment ratings. Ratings of the attachment of the child to other people were also not significantly different for the two groups, with the exception that Day Care children were rated higher on dependency. When the strength of the mother's attachment to the child was examined, there were no group differences, except that the Day Care mothers were rated lower on permissiveness. Although the groups were unbalanced with regard to sex, no sex differences in mother-child, child-other, or child-mother ratings were found, except that girls were rated more responsive and helpful to their mothers. There were no racial differences on child-other or child-mother ratings. However, white mothers were rated significantly higher in affiliation, permissiveness, and emotionality toward their children, indicating that in this sample, Negro infants received slightly less intense affective responses from their mothers. (See Taylor, J., for one possible explanation of this finding.) It should be noted that Negroes were slightly under represented in the Home group (19 whites and 4 blacks).

Developmental level at 30 months was not significantly related to strength of maternal attachment. However, there was a definite suggestion that the better developed infants tend to be more strongly attached to their mothers, indicating that cognitive enrichment is not fostered at the expense of social and emotional development, but that the two co-vary. Comparison of developmental levels at 12 and 30 months indicated that an initial significant advantage in favor of the Home sample had disappeared by 30 months (the mean Home score fell somewhat and the Day Care mean rose slightly).

On five of the seven mother-child attachment variables, high ratings were associated with high STIM scores; the same was true for affiliation and nurturance child-mother scores.

When the relationships among home stimulation, pattern of early child care (home or center), and developmental level were examined, a significant general relationship between home stimulation level and development was found. However, this was not true for the Day Care sample, suggesting that intervention had been successful.

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In discussing these results, the author notes that they are reassuring that group care is not necessarily related to a socioemotional deficit (as the institution studies had earlier indicated), however, they also do not guarantee that a socioemotional deficit would never be associated with infant day care. The type of program is clearly very important.

Costello, J.

Review and summary of A National Survey of the Parent-Child Center Program. Prepared for the Office of Child Development, U.S. Department of Health, Education, and Welfare, August 1970.

The Office of Economic Opportunity contracted with Kirschner Associates to study the first year of operation of the Parent and Child Centers. Subsequently, the author (a child development specialist) wrote this summary based largely on the Kirschner final report, A National Survey of the Parent-Child Center Program. The overall evaluation plan for the Parent and Child Centers (PCC) took into consideration the following assumptions about the program: 1) each PCC was encouraged to develop its own pattern, and to draw upon research findings and use applicable segments of early childhood demonstration programs 2) collaboration with and coordination by and of community agencies were to be important ingredients of PCC programs (unlike most existing programs for very young children); 3) involvement of parents and other family members was a required ingredient; 4) this was to be a service program, and any conflicts of purpose between service and research were to be resolved in favor of service; 5) the experimental aspects of the program were to be innovations in content and delivery of service, not experimental research.

The Kirschner report of the first year of operation relied largely on three sources of information: data from the national reporting system (basic information on enrollment, staff member characteristics and turnover, costs, etc.), reports from 39 Field Research Associates who were to devote an average of 100 hours to each center, and a test-retest assessment of infant development on a sub-sample of children in six centers, using the Bayley Scales of Infant Development. Data were collected from about July 1968 through November 1969; centers on the average had served families for 12 months by the time of data collection.

The PCC program was established within Head Start. The plan was to have thirty-six sites, located in 30 states; 11 were in rural locations, 19 were urban. At the local level, each PCC had a planning committee composed of families who would be served, community representatives, and professionals in disciplines related to young children and family life, this body became the Policy Advisory Committee.

The PCC's served very poor families. In December, 1969, 1818 families (10,417 individuals) were being served in 34 communities. Enrollment was below expectation in some cases, largely because of lack of adequate facilities for infants and toddlers (the program was aimed at children from birth to three years of age, and their families). The author provides some detail on the type of family served, noting however, that poor families are very heterogeneous. One of every five mothers was under 21, but only 22% of the parents had completed high school and 39% of the fathers and 28% of the mothers had an eighth grade education or less.

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Of families reporting income, 41% had incomes below $3000 annually; the average per capita annual income was $417.

One of the greatest frustrations in getting a program to the operational stage was lack of adequate physical facilities (construction expenditures were not authorized). The type of program varied considerably. Half of the 34 centers provided both home-visiting and center-based programs; 11 provided exclusively center programs and 6 provided only home-visiting which focused on infants by working with their mothers. Children in six centers were given the Bayley Scales twice over a ten month period; 79 children were both pre- and post-tested. On the motor scales, the average gain was 7.3 scale points (which brought them up to the national average) and on the mental scales, 10.3 points, bringing scores for a number of children within the average range. Scores were not related to ethnicity, geographic location, or local rate of infant mortality. Sex differences were unstable. The greatest gains seemed to be associated with well organized programs where goals and methods were clear to staff and observable by outsiders.

The author summarizes 15 major lessons of the first year. 1) We know little about translating complex ideas into practice. 2) New programs need to direct energies to developing workable models, but have had their time consumed by organizational problems. 2) Policy Advisory Committees (with large resident participation) represent a new concept difficult to translate into practice, but worthwhile. 4) A hierarchy of program development goals is needed by most PCC's. 5) There is a scarcity of professionally talented individuals to direct such centers. 6) Training of paraprofessionals received considerable investment, but with uneven results; apprenticeship appeared more effective than discussion and written materials. 7) Facilities were the focus of major difficulties. 8) While medical programs achieved many of their goals, there were difficulties with reporting and nurses were not on the staff at all centers. 9) Fathers were not sufficiently involved in programs for families (the focus seemed to be on the mothers), and older siblings were often minimally involved. 10) Children's programs were slow to develop. 11) Interdisciplinary leadership would be desirable but most PCC's were dominated by either educators or social workers. 12) Cost analysis was difficult both because directors need training in providing accurate data and it is difficult to define outputs. 13) For future years, broad evaluation is recommended (rather than focusing on the target children only). Data collection should be done by people identified with the research arm of the enterprise (one advisory committee member, who reflected the views of many parents, said she would not vote five cents to learn anything more about poverty). 14) Information exchange among centers is needed. 15) Psychic fatigue in the war on poverty should not be overlooked; staff tended to experience greater personal stresses than on previous jobs.

* Some of the experiences of the PCC's in starting up programs, and the difficulties associated with the first year of operation, should be generally relevant to any beginning program for very young children.

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Day Care and Child Development Council of America, Inc.
Basic facts about licensing of day care. Washington, D. C.: Author, 1970.

This paper provides an overview of state day care licensing in the United States; it is not specific to any one state. It is noted that many regulations were adopted on the basis of expediency in response to a rapidly developing demand for day care, and were not designed for the specific kinds of programs involved but were adopted from existing hospital, restaurant, etc. codes. As a result, while requirements may provide for adequate facilities, they do not necessarily provide for quality programs for children.

Definitions of day care for licensing purposes, the types of procedure involved in licensing (types of approval required, e.g. zoning commission, fire and safety, building inspector, etc.), facilities covered, and other topics are described. Lists, by state, of the existence of licensing, the names and addresses of state level licensing agencies, and the chief statutory provisions interfering with protection of children through licensing are provided.

Some problems and issues that need to be explored in communities are listed. Are licensing requirements appropriate for the children they are designed to serve? Is there adequate consultant help so that quality programs can be initiated and maintained? Is there a mechanism for progressive up-grading of programs? Does the community provide resources for up-grading of programs?

• State licensing requirements vary so widely, and change so frequently, that it would be difficult to publish an up-to-date report useful to individuals in all states. This statement provides a general orientation to the problem.

Day Care and Child Development Council of America, Inc.
Title IV-A of the 1967 Social Security Amendments. Washington, D.C.: Author, 1971.

This general description of Title IV-A provides some basic information about what is described as the greatest current potential source of federal funds for day care. It is noted that specific information about how to obtain Title IV-A funding in a given state must be obtained from that state's State Welfare Department (not the local welfare department).

This paper describes who is eligible, how much money there is and where it comes from, who administers such funds, regulations that must be met, whether the money must be used similarly throughout a state, the success of the program, and how to begin to obtain such funds.

Briefly, Title IV-A money can be used to provide day care services to past and potential Aid to Families with Dependent Children (AFDC) recipients. An entire neighborhood can be eligible. The federal government contributes 75% of the cost of child welfare services; the other 25% must be provided locally. State welfare departments vary in the ways in which such funds are used.

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Denenberg, V. H. (Ed.)
Education of the infant and young child. New York: Academic Press, 1970.

The papers in this book are expanded and more detailed versions of papers presented in a symposium at the meeting of the American Association for the Advancement of Science held in Boston in December, 1969. "The purpose of the book is to bring together information which is relevant to our understanding of the effects of early education experiences, including those experiences which are unique to day care centers" (p. ix). The papers contain specific, practical suggestions concerning what should and should not be done in a day-care center, as well as a variety of research ideas and theoretical positions. As such, the book contains information important to a wide range of people.

Following an introduction by the editor, the chapters are by J. Kagan (On class differences and early development), W. A. Mason (Early deprivation in biological perspective), H. Papoušek (Effects of group rearing conditions during the preschool years of life), E. S. Schaefer (Need for early and continuing education), and D. P. Weikart & D. Z. Lambie (Early enrichment in infants). Also included are discussions by J. S. Bruner (Infant education as viewed by a psychologist) and R. E. Orton (Infant education as viewed by a public program manager), and a final chapter by the editor (Some considerations concerning day-care centers).

Department of Health, Education and Welfare - Office of Child Development.
Abstracts of State Day Care Licensing Requirements, Part 1 & 2. Washington: Author, 1971.

This two volume work is the product of a joint endeavor of the Office of Child Development and the Office of Economic Opportunity. Abstracts of the licensing requirements for every state and the District of Columbia are presented in a uniform and coherent format. Requirements can be compared on a state-to-state basis. The licensing agency in each state, as well as the specific statutes applicable to day care, are identified. Part 1 is titled "Family Day Care Homes and Group Day Care Homes"; Part 2 is "Center Day Care".

* While this is a useful reference work, it was published in 1971, and the information was undoubtedly collected somewhat earlier; licensing requirements probably have changed in some states since publication. Up-to-date information can be obtained from the agencies listed for each state.

Dittmann, L. L. (Ed.)
Early child care: The new perspectives. New York: Atherton Press, 1968.

This book grew out of a series of four conferences held between April, 1964 and November, 1965. Experts in the field of early child development were brought together to pool information and experiences and to review research findings as a basis for sound planning

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for children under three years of age. Consensus on some of the fundamental principles of early development was reached. This volume is based on such consensus.

Rather than providing abstracts of each chapter of this book, the chapter titles and authors will merely be listed, to provide the reader with an idea of the range and type of information it includes.

Part I is titled A New Look at the Young Child: Development and Individuality. It includes chapters by L. J. Yarrow (Conceptualizing the early environment); S. Provence (The first year of life: The infant); E. Pavenstadt (Development during the second year: The one-year old); P. B. Neubauer (The third year of life: The two-year old); and L. B. Murphy (Individualization of child care and its relation to environment).

Part II is concerned with translating child care goals into procedural terms. It includes chapters by L. B. Murphy (Assessment of infants and young children); J. L. Gewirtz (The role of stimulation in models for child development); and again by J. L. Gewirtz (On designing the functional environment of the child to facilitate behavioral development).

Part III deals with contemporary programs and strategies. It includes chapters by C. S. Chilman (Poor families and their patterns of child care: Some complications for service programs); and D. R. Meers and A. E. Marans (Group care of infants in other countries).

Part IV is titled New Research in the Prevention of Culturally Determined Retardation. It includes chapters by A. E. Marans, D. R. Meers, and D. S. Huntington (The Children's Hospital in Washington, D. C.); H. R. Robinson (The Frank Porter Graham Child Development Center); S. Provence (The Yale Child Study Center Project); and B. M. Caldwell & J. B. Richmond (The Children's Center in Syracuse, New York).

An epilogue by R. S. Lourie (Implications for future planning), and two appendices (The vulnerability inventory by L. B. Murphy, and A "typical day" for the groups at the Children's Center by B. M. Caldwell & J. B. Richmond) are provided.

* This book should prove very informative to those concerned with the care of infants and very young children. In addition to the general information provided, the descriptions of various intervention and day care programs will be helpful to those planning or already involved with supplementary care.

Dokecki, P. R., Bridgman, J., Goodroe, P., & Horton, D.
The training of family day-care workers: A feasibility study and initial pilot efforts. DARCEE Papers and Reports, 1971, 5(No.1).

It is estimated that four out of every five children in day care in the U.S.A. are in family or home day care. With this in mind, the pilot study described in this paper was undertaken. Its purpose was to determine the need for, and feasibility of, a training program for

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family day care workers. Beginning in mid 1970 exploratory efforts were focused on 51 licensed family day-care homes in Davidson County, Tennessee. The DARCEE home visitor model was adapted to an exportable model for training family day care workers in their own homes. Observations were made, including assessment of the physical setting, the neighborhood, the overall home arrangement (outside and in). Observations concerning the worker included: indications of planning, her interaction with children, responsiveness to the observer, the children, the overall activity and noise levels in the home, and the interaction patterns. These observations generally revealed adequate physical care and warm and affectionate workers, but little organized scheduling, great variation in ability to perceive and respond to individual developmental or personality differences, and lack of concern for the provision of learning experiences. Workers seemed very amenable to training which would take place in their home.

A survey of the states (40 responded) indicated great interest in training programs for family day care workers. In the few instances in which it was available, the worker was required to attend meetings, and the training included limited specific application of principles. Licensing requirements paid little attention to quality or an educational component for family day-care programs. DARCEE has been trying to assess needs and develop an appropriate training program which would include the following areas: preparation of workers to meet the basic needs of children, preparation to serve as a substitute for the mother in meeting the child's emotional needs (workers observed did not seem prepared to give feedback and praise), preparation for general management of the family day care situation (scheduling, appropriate selection of materials, etc.), preparation to adapt to children's development and the heterogeneity of ages in the family day-care home (sensitivity to the changing needs of the child is important), and suggested preliminary criteria for selection of family day care workers (since qualified staff are the most crucial element).

In the pilot study conducted to aid with the development of a training plan, home-visitors made weekly visits to the homes. The general objectives are outlined in the report: they included objectives regarding the physical environment, interaction patterns (possible reinforcement, language, etc.), specific skills such as how to gain children's attention, how to read and tell stories, how to develop materials, and so on. Ways to increase the worker's aspirations for improving her own ability were included, along with ways of implementing learning and minimizing weaknesses.

While evaluation of such a project is difficult, attempts have been made to assess the process of visiting (by preparing set objectives for each visit and comparing them with the outcomes, etc.). Further work on validation and modification of the training program is planned.

The appendix of the report includes a sample month's menus for feeding children nutritionally on a limited food allowance, useful ideas to communicate to family day care workers regarding behavior management by use of positive reinforcement, notions concerning the eating behavior of children, suggested guidelines for reading a book to children, and some sample meterials for improving recreation (song-games).

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* As mentioned at the beginning of the abstract, family day care is perhaps the most common form of child care in the U. S. Unfortunately, very little is known about who provides it, how well, what kinds of experiences children in family day care have, and how they compare developmentally with children receiving other kinds of care. One of the disadvantages of family day care has been that the women providing such care have typically had little or no training in child care. Therefore, this study should be invaluable in terms of both providing information and developing a training program and training materials for family day care workers.

Elardo, R.

Language stimulation with young children. Paper presented at the Tri-State Workshop on Early Childhood Education, Northeast Alabama Cluster, Cullman, Alabama, October 1971.

For early childhood workers, the author explains language acquisition theory and the place of language training in early education.

He notes that there are two views of language acquisition: Chomsky's position that maturation and exposure are the critical features, and the behaviorist (e.g. Skinnerian) view that the environment, particularly in terms of reinforcement, is critical. The author suggests that language development can be stimulated using both points of view. Specifically, he discusses expansion, modeling, reinforcement, use of informative remarks rather than prohibition, and talking with a child about a third thing rather than to the child. He suggests that effort be made to increase talk among children (if necessary, at the expense of loss of table manners), particularly by using mixed age groupings from time to time, by having available objects of considerable mechanical complexity, and by using role-playing situations (e.g., puppet plays). Structured language activities are advocated, and it is recommended that paraprofessionals either undergo an extensive 2 or 3 week training program or be selected as people who talk to children and enjoy doing so. Ways in which parents and families can be included in the program are suggested, and some specific suggestions for work on comprehension with two-year-olds are given, along with others for production work with three-year-olds. Evaluation is discussed with recommendations.

* While the general orientation toward language and its importance is relevant for people working with children of all ages, specific suggestions given in this paper are oriented toward the 2-3 year period rather than to infancy.

Elardo, R., & Pagan, B. (Eds.)

Perspectives on infant day care. Orangeburg, S. C.: Southern Association on Children Under Six, 1972.

The first annual Southern Association on Children Under Six (SACUS) workshop on infant day care was held in Little Rock, Arkansas in June, 1971. This book represents the

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proceedings of that workshop. It includes the following chapters: Infant Day Care-Fads, Facts, and Fancies, by B. M. Caldwell; Family Day Care -A Broad Perspective, by M. S. Host; Getting Started -Licensing & Standards for Day Care, by J. First; The Health of Children in Group Day Care, by F. Loda; Training for Work in Infant Day Care Centers, by A. Mazyck; The Problem of Physical Space, by C. Witsell, Jr.; Managing the Daily Schedule, by C. Wheeler-Liston; Sound Health Practices for Day Care Infants, by F. Loda; Some Guiding Principles and Practical Suggestions for Infant Day Care Programs, by B. M. Caldwell; Teaching-Learning Activities, by J. Honey; Assessment of Developmental Progress, by P. Elardo and R. Elardo; Some Precautions in Establishing Infant Day Care, by B. M. Caldwell; and an appendix of 180 developmental objectives for infants and toddlers (an item checklist).

* This book addresses some issues, problems and areas of importance concerning infant day care.

Emlen, A. C., & Watson, E. L.

Matchmaking in neighborhood day care: A descriptive study of the day care neighbor service. Report submitted to the Children's Bureau, Office of Child Development, U.S. Department of Health, Education, and Welfare. Portland, October 1970.

This monograph describes and evaluates the results of a type of day care service known as the Day Care Neighbor Service which was operated in Portland, Oregon, from 1966 to 1968. The idea behind the service was to intervene at the neighborhood level where families privately and without benefit of a social agency make day care arrangements with neighborhood "sitters" or caregivers. This service did not provide day care or supervise day care, it merely provided a third party to help neighbors with the process of making child care arrangements. An informal, unofficial system of recruitment and matchmaking operates in most neighborhoods. Day Care Neighbors were recruited (usually they were women who had cared for children in their homes) and were provided with skilled social work consultation. They were paid a token fee of $25 per month. Their function was to provide information and referral, to recruit caregivers, to matchmake between caregivers and users, and to help caregivers and users with problems that arose (occasionally to respond protectively). The system basically operated on the principle of making maximum use of the least effort necessary to strengthen ongoing social processes without disturbing the neighborhood status of the behavior involved. The study was conducted to determine whether such a program would work, and be replicable. It was not designed to assess the effects on the children involved.

Some problems in family day care (care by non-relatives outside the child's own home) were identified. The first concerns pressures on the working mother in making new arrangements (finding a new babysitter, often a crisis); this was the point of entry of the Day Care Neighbor Service. A second problem concerns the low status of the caregiver role in this society. This combined with lack of social and financial support frequently leads to low quality care. There are, however, women whose interests and talents recommend them for the caregiving role, and they can be recruited through a program like the Day Care Neighbor

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Service. The problem of instability in the family day care arrangement is also found; while a virtue of such care is its flexibility, arrangements are often less stable than would be hoped, and a third person can sometimes play a stabilizing role. Problems of neglect, abuse and inadequate supervision are infrequent but do arise, and Day Care Neighbors can and did intervene informally.

Much data concerni[illegible]eferrals are described in the report. It was found that greater and lesser success in referral and matchmaking was achieved according to the particular neighborhood and the skills of the particular individual involved. Day care neighboring tended to be territorially specialized, and limited according to ethnic and socio-economic communications in the area. The service reached users of full-time, part-time, and irregular care. Arrangements were made for infants, preschoolers, and school age children, but especially for children under six.

An epilogue written by one of the day care neighbors is included in the report. She noted that it was sometimes possible to combine a program of day care and nursery school, with the day care mother taking the children to the nursery school and sometimes also taking the mother's turn in a co-op.

A "how to do it" handbook, "The Day Care Neighbor Service: A handbook for the Organization and Operation of a New Approach to Family Day Care" has also been written. (Not included in these abstracts)

Forrester, B. J.

Parents as educational change agents for infants: Competencies, not credentials. Paper presented at the meeting of the Council on Exceptional Children, Washington, March 1972.

This paper describes the Intervention Study with Mothers and Infants conducted by the Demonstration and Research Center for Early Education (DARCEE) with 20 low-income mothers and their infants. A home visitor visited each home for one hour or more per week for a total of 24 visits; the infants were 7 to 9 months of age at the beginning of the program and 16 to 18 months of age at the end. The project and results have been described in Forrester, Hardge, Outlaw, Brooks, & Boismeier (1971).

The present paper was presented along with 40 slides designed to emphasize that it is what parents do with their infants rather than who they are that is important. Each slide is briefly described in the paper, and the reader is thus provided with some idea of the kinds of activities emphasized by the home visitors when working with mothers; the slides depict mothers in interaction with their infants.

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Forrester, B. J., Hardge, B. M., Outlaw, D. M., Brooks, G. P., & Boismeier, J.D. The intervention study with mothers and infants. Unpublished manuscript, George Peabody College for Teachers, Demonstration and Research Center for Early Education, Nashville, Tennessee, 1971.

The purpose of this study was to assess the effectiveness of a home intervention program for mothers and infants. The project focused on infant growth and development in terms of gross-motor, fine-motor, cognitive, language, and personal-social development. Evaluations were made of instruments for infant testing, home visitor techniques that modify maternal teaching practices, and materials to foster infant development.

The subjects were 20 young mothers (both white and black) from low-income homes and their 7 to 9 month old children. An equal number of mother-infant pairs comprised the comparison group. Home visits of an hour or longer were made weekly for a maximum of 24 visits. Six cycles of home visits were made. In the first cycle (two visits) the focus was on physical care in relatively structured routines (feeding, dressing, diapering, etc.), with the social and cognitive components of the routines pointed out. The next five visits emphasized improvement of the mother's ability to observe the baby's behavior and development and to make play materials. The third cycle (four sessions) had behavior management as a dominant goal (rewarding, reinforcing, gaining the infant's attention, disciplining, etc.). The next four sessions were designed to foster increasing involvement of the mother in the conduct of activities during the visit; the role of the father and suggestions for his involvement were included. In the fifth cycle (five sessions) the mother verbalized the things she had observed and done during the between-semesters break in sessions, the goal being to make the mother increasingly independent of the visitor. The sixth cycle (four sessions) consisted of a review, phase-out, and outlining of expectations the mother could have for the child after 18 months of age. With regard to materials used, the focus was on specifying what to use, why to use it, how to use it, and the sequencing of materials and activities.

The post-test results indicated that the experimental group of infants scored significantly higher than the comparison group on several measures of cognitive development: the Bayley mental scale (mean scores of 118.6 and 100.9; Bayley motor scale scores did not differ significantly - means of 113.75 and 108.2); the Griffiths Mental Development Scale total quotient (105 versus 96.6), and the Griffiths hearing and speech, and eye and hand subscales. The Uzgiris-Hunt Infant Psychological Development Scale (IPDS) total score (91.85 versus 82.5) was significantly higher for the experimental infants as were the following IPDS subscale scores: visual pursuit and object permanence, development of schemas in relation to objects, construction of objects in space, and development of limitation.

A procedural manual, Home Visiting with Mothers and Infants (1971), was developed from the project and is available through the DARCEE information office (this is a supplement to the Guide for Home Visitors which is also available).

Follow-up testing will hopefully provide information concerning the extent to which the maternal training achieved through the home visits is effective on a long-term basis.

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Fowler, W.

A developmental learning approach to infant care in a group setting. Merrill-Palmer Quarterly, 1972, 18, 145-175.

This paper includes a description and some results of a three year project providing all-day care for infants in Toronto, Ontario. The purposes of the project were to probe the significance of early experience as a foundation period for developmental learning by establishing a quality program of group day care and education for infants which would serve as a model to foster infant day care in Ontario and elsewhere in Canada. The program was aimed at working mothers and families living in poverty.

Over the course of the study, 30 advantaged infants who were admitted on the basis of social need (including 5 black infants), and 9 disadvantaged infants (including 1 black), participated in the program. They typically entered at less than seven months of age, and ranged in age from two to thirty months over the 3-year period. A variety of standardized assessment measures (Bayley Scales, Stanford-Binet, the Kohen-Raz subscales derived from the Bayley mental scale, the Schaefer and Aaronson Behavior Inventory) were administered in addition to other scales developed for the project to assess adaptation and autonomy.

The program of total day care attempted to establish an optimal psychosocial and physical environment of group care to facilitiate development in all infants. The program was organized in terms of objectives in the areas of perceptual-cognitive processes (including cognitive competence and curiosity as objectives), socio-emotional relations, and motor development and physical health. In addition to the care component of the program, a student education component (including academic courses and practicum training in the center), and a parent education and guidance component were included. The latter was implemented primarily through an in-service trained parent worker. Visits to parents (in the evening, on weekends, or at lunch hour for working mothers) were scheduled depending upon need, with a minimum of three per year (in addition to a few parent nights) and as often as several times per week. These visits were supplemented by telephone contact and daily encounters with staff (and students) when the baby was picked up and brought to the center. The parent program centered on problems of childrearing and on educating parents in play methods of infant care and stimulation.

The day care program was organized around three types of activity: day care routines, free play, and guided learning in interactive play. Techniques were developed for education in each of the areas, based on general principles of stimulating, relating to, and caring for the child. The children were grouped developmentally (and according to caretaking required). A period of high dependency lasted up to about 12 months, followed by a second developmental span during which the beginning of autonomy, mobility, speech and systematic means-ends play became more evident (to about 21 months). The oldest group (up to 30 months) consisted of children who had achieved relative mastery of physical developmental routines, in whom syntax, group awareness, the integration of fantasy and multiple units of play were becoming more consistent. The author provides some detailed description of the activities of children and teachers in each group.

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The results indicated that the program was very successful. Over 45% of the day care infants from each of the advantaged and disadvantaged samples gained from 20 to 50 mental score points and 60% gained more than 10 points. The advantaged group, which started higher (110.63 vs 100.00) made highly significant and slightly larger gains (mean 19.17) than the nonsignificant, although substantial (16.11) average gain of the disadvantaged group. For both groups, fine and gross perceptual-motor skill development was adequate, and socioemotional development was moderate to high in adaptation level. Gains in motor development were neither as great nor as consistent as those in intellectual development (the program did not emphasize them as much, and staff were aware, for example, that mobile infants were often carried for caretaking convenience at the expense of practice of motor skills). Mean ratings of socioemotional development and motivation in both play and mental testing were predominantly average to superior when compared with norms and with ratings for home-reared control subjects (matched to the day care infants). Advantaged infants (especially girls) were rated generally higher, and there were more signs of problems for the disadvantaged (excessive scores on belligerence and irritability). Earliness of entry (before eight months) and length of participation were both positively related to cognitive and socioemotional development. It is noteworthy that gains were substantial for even the advantaged infants, which may suggest the need for revision of educational and developmental objectives for middle-class and working-class children.

The author suggests that the results have many implications for prevalent middle-class childrearing myths about the value of home and mother as the sole emotionally significant figure for caretaking. The issue really appears to rest more on the quality of care and education which can probably be adequate in either home or group care. He suggests that home and group day care be viewed as natural and necessary complementary community resources for rearing infants.

The finding that advantaged girls made consistently higher mean mental score gains than advantaged boys is interpreted in relation to the fact that the value system and methods emphasized to parents stressed the importance of autonomy, intellectual curiosity, and achievement for girls as much as boys. If earlier parental expectations for girls had been lower (in line with society's expectations) there would have been more room for cognitive stimulation to have an effect on girls; 64% of the girls but only 31% of the boys gained 20 points or more. These findings are discussed in relation to the problem of socialization of girls in general.

Finally, it is noted that participation in the program by disadvantaged families involved many more difficulties (because of their numerous pressures) than participation by advantaged families; a half dozen (of 11) children from such families failed to gain, declined markedly and/or dropped out. The author emphasizes the importance of locating day care facilities in the poor community because of the extra support such families require.

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Fowler, W.

Infant education. In N. Byrne and J. Quarter (Eds.). Issues in education in Canada. Toronto: McLellen and Stewart (1972, in preparation).

The author asks why, when the importance of early experience is so clearly recognized, does the value of regulating infant care and education in some systematic way to insure optimal development raise so much doubt? He suggests that one reason may be that what infants learn is a basic cognitive framework, that rules exist, and such learning is difficult to observe (unlike the specific rules which are added later to the framework). He reviews historical trends in care, noting that the trends seem to emerge from social patterns more than from considerations of what education should be. Historically, multiple caretaking has been the rule. The more recent isolation of the nuclear family and separation of home and work actually restrict the experience of infants (the regular absence of males is particularly restricting). The lower working class is especially isolated, being cut off both from the resources needed for coping, and the resources needed for rearing children to cope. Various models of infant care are discussed, from multiple caretaker arrangements of socialist societies and communes, to extended families of folk societies (including black, rural and lower-class working societies), and institutional care. The social bases of infant education are seen to derive from two types of social organization: the culturally traditional and the agency regulated systems. Stemming from both the human condition of cooperative social living and from the accumulation of scientific and empirical knowledge, these two trends seem to be converging. There is growing recognition that education, particularly for babies, must be personalized and related to life and the community, as well as rational, systematic, planned and cognitive, if it is to match the potential for human development. The dependency of infants, however, means that their thriving or deprivation depends on the efforts and arrangements made by adults for them.

In discussing the characteristics of infant development, the author outlines three major cognitive rule systems: rudimentary rules of knowledge about the physical and social world, rules about problem solving, reasoning, and creative activity, and language rule learning. His mastery of these major rule patterns determines the quality of his foundation for later learning, particularly since most institutions of socialization and education do not devote much time or attention to remediation. Early high abilities are labeled and rewarded with opportunities to learn more all along the way, just as early low abilities are labeled and deprived of later opportunities to learn. The differences in development are not just in terms of level of functioning but also in form or quality of cognitive and emotional functioning.

Two major principles of developmental care and education are offered. First is the indispensability of emotional support and sensitivity in relations with children and second is the significance of cognitive orientation to activity; each complements the other in all activities. Most important in insuring a high quality of emotional care is a social structure in the caretaking environment that values highly the feelings and rights (and obligations) of every member. The cognitive orientation process consists of helping the infant to understand all about the world in every situation of his daily life.

Above all, stimulation should be developmentally adaptive, appropriate to the level and forms of functioning of the child. Stimulation with infants works best in the context of

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sensorimotor play, the processes with which they most naturally attend and learn. These include exploratory-manipulative play, instrumental play, construction-creative play, and symbolic play (both poetic language play and sociodramatic play). The adult's role is one of guiding the learning of babies, and this should be done in all types of activity: physical care, freeplay, specialized learning, and excursions to the wider community.

Suggestions for guiding the learning of information rules are given. The author emphasizes that illustrations of culturally specific and varied concepts should be used; the value of human diversity must be stressed early. The critical function of language stimulation is discussed; concrete activity without the regular accompaniment of language is insufficient to produce complex forms of development. Learning is developmentally a cumulative process so guiding infants also means planning task and concept experience sequences.

The model of adulthood toward which the author feels infants should be educated is basically scientific, humanist, and aesthetic. The value of educating an infant accordingly, when he will only enter a diseased society, may seem questionable, but by establishing quality educational play centers for infants ("states of innocence"), some of the societal ills, such as the restrictions on women, may be alleviated.

Gewirtz, J. L.

Deficiency conditions of stimulation and the reversal of their effects via enrichment. Paper presented at the International Society for the Study of Behavioral Development, University of Nijmegan, Netherlands, July 1971.

The author conceptualizes deficiency and enrichment in terms of social learning theory, and then discusses their relationship to group care settings for young children. Enrichment, then, is not just increased stimulation, but increased functional (typically contingent) stimulation. Privation refers to conditions in which important stimuli are absent in early life and is distinguished from deprivation which refers to shifts or decreased availability of stimuli which had gained functional importance for the child.

The author argues for a learning rather than a deficiency-motivation model for describing inadequate environments. The ecological factors of available physical space and materials and positioning of people in the space are noted as important determinants of behavior in day care settings.

Response shaping as an enrichment procedure is promoted.

* The author presents no new principles (e.g., contingency of stimulation and the child's responses) but merely puts in social learning theory terms accepted ideas about group care, deficiency and enrichment.

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Gordon, I.

A home learning center approach to early stimulation. Unpublished manuscript, adapted from progress reports, July 1971.

The purpose of this project was to continue the investigation of a home-oriented approach to intervention in the lives of very young children in a way which might help break the poverty cycle. The Home Learning Center project was therefore similar in aim to the earlier Home Visitor project with infants. In addition, both used low-income women as the major educational group and used similar stimulation procedures based on the conversion of Piagetian principles and measurement tasks into instructional activities (i.e. a cognitive developmental orientation). While home visits were part of both programs, the Home Learning Center project also included a small-group setting for additional instruction of the two-to-three year old subjects. These settings, "backyard centers", were located in the homes of mothers whose children were in the program.

The Home Learning Center project included 158 families of either experimental or control status in the earlier project (when the children were aged 3 months to 2 years), and 100 additional families added in November, 1968. These families were divided into eight treatment groups based upon length and timing of instruction and presence of instruction (e.g. Experimental, three months to two years, Control third year, or Experimental, three months to one year, Control, second year, Experimental again during third year).

The two to three year old Experimental subjects spent four hours a week in two separate sessions of at least five children at the Backyard Center, which was located in the home of a mother in the project. The Center was specially equipped and was not a permanent location, varying according to the number of children in the project in that neighborhood. The children were transported to and from the Center by the Home Learning Center Director who had been a parent educator in the earlier infant project, and came from the same (disadvantaged) population as the subjects. Each week, the Center Director spent four days (eight sessions) with children, made home visits to the families of her center children, and spent one day of in-service education.

The parent education part of the project revolved around the home visits made once a week by the Center Director. The tasks on which they worked were integrated with the Backyard Center work to provide continuity. Certain materials (e.g. clay, blocks, books) were brought into the home on a loan basis; the infant project had used materials already in the home but for the older children the loans were necessary.

A team approach was used for the development of instructional materials. A curriculum Development Team, composed of 3 professors, 3 graduate students and an artist-graduate student, met as a brainstorming group every Tuesday afternoon. The rough tasks produced by any group member were duplicated, and presented the following morning to the Center Directors and Child Development Trainers (mothers in whose homes the Backyard Centers were located) for comment and modification. The focus was on how the task might have pay-off for 1) interpersonal mother-child relationships, 2) cognitive development, 3) the child's feelings of competence, and 4) the mother's sense of accomplishment. The modified tasks were given to the Center Directors for trial, and remodification took place the following week.

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In terms of research, the difficulties in assessing development are discussed. The solution to the problem of lack of continuity in measures of cognitive development for the early years was to factor analyze the Stanford-Binet and use factor scores as measures. Problems with measurement of self-concept are also discussed; the resolution was to use the Stott Scale of Effectiveness Motivation, and a situational observation schedule providing 80 minutes of information on each child during early, mid and final participation in a Home Learning Center.

The results indicated that on cognitive measures, the longer the children were in the program, the better their performance, with the major differences occurring between 2 or 3 years and 1 and 0 years. Age at entry into the program did not significantly affect the performance of those who had equal time in the program. In terms of self-concept, for the total group there was a low positive correlation between Stott and Stanford-Binet scores, with some sex differences. For boys, effectiveness motivation was related to task oriented behavior at ages 2 and 3; for girls, it was related to test performance at 2 and 3. For boys, task oriented behavior at 2 was predictive of test performance and behavior at 3; for girls it was not.

Mothers were interviewed to elicit open-ended responses to the project. There were no differences in academic or career orientations, but experimental mothers reported that they were significantly more involved in the learning of their children than controls (53% to 31%), and some saw their children as smarter or learning faster than other children, making social progress (78%). No control mother stated that her child was superior, and several said they wished their child could have been in the program.

One major outcome of the program is its viability, and another is its curriculum. In terms of research, the program points to needs for comparable measures of cognitive development, and the construction of measures of social and emotional development. The need to recognize possible side effects of such programs is also noted.

Gordon, I. J. & Jester, R. E.
Instructional strategies in infant stimulation. Unpublished manuscript (proposal and progress report submitted to the National Institute of Mental Health, December 1970).

Based on both research findings and their project experiences from 1966-1971, the authors propose to test whether professionals and paraprofessionals differ in methods of instructing mothers, whether there are differences in mothers and infants if mothers or infants are targets for instruction, whether instruction can be improved through observation and feedback, and what role sex differences play in maternal behavior, expectancies, parent educator behavior and child performance.

In reviewing literature relevant to each of the above questions, descriptive material (concerning variables looked at, focus, etc.) on other projects is provided. Of seven university-based projects, only one (DARCEE) included measurement of child affective behavior and only one, the author's project in Florida, measured parent affective and/or

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cognitive behavior (all projects were concerned with child cognitive behavior). The literature review also notes that intervention projects have typically not had highly specified curricula, and there is limited knowledge of the effects of intervention on the attitudes or behavior of the mothers (data tend to be of the social work observation type, anecdotal, or based on interview). It is also noted that systematic observation of maternal or intervener teaching behavior are lacking, and that assessment of intellectual growth has been quite gross.

The proposed research, which includes home visits and center assessment (once every six weeks) of parent educators, is described.

Gray, S. W.
The child's first teacher. Childhood Education, 1971, 48, 127-129.

In this paper the philosophy behind the programs of the Demonstration and Research Center for Early Education (DARCEE) is described, along with some possible reasons for the success of the home visitor programs.

The author contends that the mother is the most important single individual in the life of the infant and young child; she is literally the child's first teacher. She is the controller of stimulus events (by determining what impinges on the child) and the controller of the reward system (because it is she who most often responds to the child, whether positively, negatively, or neutrally). In working with low-income families, two great strengths in most of the homes have become apparent: the deep underlying concern of such parents for their children, and the deep underlying reservoir of potential they have for improving their lives. However, while the goals of these parents may be similar to those of middle income parents, they usually lack the knowledge required to achieve the goals (such as how to help their children become more effective in school). They tend to see themselves as being controlled by events rather than being able to assert any measure of control upon events, including the behavior of their young children. Accordingly, the author and her colleagues have over the past decade explored ways of working in the home. They have found it possible, through weekly visits over eight month or longer periods, to make the mother an effective teacher. Moreover, they have found that the effect tends to spill over to the other children in the family; this is termed vertical diffusion (within the family). In addition, parents living nearby have become interested in the research program and have often tried to implement in their homes things they have seen or heard about; this is termed horizontal diffusion (into the community). Finally, mothers in the program have tended to become more effective in coping with other life demands.

In an attempt to describe what may be unique about this particular program, the author outlines a pattern of distinguishing elements. 1. The common goal of all DARCEE programs is to enable the mother to become a more effective educational change agent for her small children. 2. The general approach is through a recognition of the basic concern of the parent. 3. The focus is on the parent rather than on the child. 4. No family

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member is excluded from the lesson during the home visit (both because it promotes rapport, since mothers may not have other caretaking arrangements available, and because those who watch or join in are likely to benefit) 5. The materials used are easily available or simple to construct. 6. Over the series of visits the goal is to move the parent toward increasing initiative and independence in planning for the child (she is increasingly asked to suggest daily activities for periods between visits). 7. Help and guidance in the use of simple reinforcement procedures are given (it has been found that many parents sincerely believe that punishment is the most effective way to change behavior). 8. As the mother becomes more effective with her child, she is helped toward better coping skills in all of her experiences. 9. The approach is highly individualized, and recognition is given to cultural differences. 10. The long-range goal is to help provide more options for the parent, to help her take advantage of the options already available, and to help her develop new ones for herself.

The author feels that while home visiting is not a panacea for the problems of low-income families in present day society, it can still provide a lasting contribution toward improved life-style and general welfare in such homes.

Gray, S. W., & Klaus, R. A.
The early training project: A seventh year report. Child Development, 1970, 41, 909-924.

This report describes the performance at the end of fourth grade of children who had been involved in the Early Training Project during their preschool years. These subjects were Negro children from poor families; their parents' occupations were unskilled or semiskilled, with an education level of eighth grade or below, and an annual family income of considerably less than $3000. The T_1 (experimental) group consisted of 19 children who attended a ten-week, half-day preschool for the three summers prior to first grade, and received weekly home visits for the same three winter periods. The T_2 (experimental) group was 19 children who received the same intervention but for only the two years prior to first grade. The T_3 (local control) group was 18 children living in the same ghetto-type area of the same Tennessee city of about 25,000 people; they were tested at the same times as the experimental groups but received no intervention. The T_4 (distal control) group was made up of 23 children who resided in a similar city 65 miles away; their treatment was the same as that for the T_3 group. The purpose of the project was to design a general treatment approach which would offset the progressive retardation observed in the public schooling of children from deprived circumstances. It was also hoped that the treatment approach would be able to be repeated on a large scale if it proved successful. The intervention program was oriented toward attitudes relating to achievement (particularly achievement motivation, ability to delay gratification, general interest in typical school materials, and parental aspirations regarding their children's achievement), and perceptual, cognitive and language aptitude variables.

The test results indicated that intervention caused a rise in Stanford-Binet (S-B) intelligence test scores which was fairly sharp at first, then leveled off, and finally began to show a decline once intervention ceased. The control groups showed a slow but consistent decline

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with the exception of a jump from the beginning to the end of first grade. S-B IQ score differences between the experimental and control groups were still significant at the end of the third year after intervention ceased. While all four groups showed a decline in IQ after the first grade, the decline was relatively parallel, with the experimental groups still scoring higher than the control groups. Results from the Peabody Picture Vocabulary Test showed a reasonably similar pattern: a rise during intervention (including the first grade) then a leveling off and a slight decline. The group differences, while consistent, were by 1968 (the year of follow-up) no longer significant. At the end of the first grade, experimental children scored significantly higher than control children on the word knowledge, word discrimination and reading subtests of the Metropolitan Achievement Test. One year later, they scored higher on only word knowledge and reading (of five subtests), and at the end of the fourth grade, only their reading scores were significantly higher. This may indicate that the school system failed to sustain at any substantial level the initial superiority due to intervention. The authors also note that while most subjects remained in entirely Negro schools, at the end of the first grade (when the schools in the community theoretically became desegregated), eight of the children enrolled in schools that had been previously all-white. When eight children who did not change schools were matched with them (a chancy procedure, and small samples, as noted by the authors) by the end of the fourth grade the children who had changed schools had made from .8 to 1.4 years' greater gain than those with whom they were matched (the former made approximately normal achievement gains, the latter gained 2 years or less for the 3 years between first and fourth grade).

Some interesting results concerned the indirect effects of the program on younger siblings. The younger siblings of the experimental children had significantly higher S-B IQ scores than the younger siblings of the control children, and most of this difference came from the younger siblings closest in age (1 to $2\frac{1}{2}$ years younger) to the target-age children. This process, called vertical diffusion by the authors, appears to result primarily from the influence of the mother rather than the older target sibling. There was also some suggestion of a horizontal diffusion process; the younger siblings in the local control group were superior to the younger siblings in the distal control group (in whose community no children received intervention).

While scores did indicate a parallel decline for all groups, the authors comment that any gains are really quite surprising when one realizes that the children spent less than 2% of their waking hours from birth to six years in the program. Without massive changes, poor home circumstances will undoubtedly continue to have a pervasive effect on performance. Intervention programs for preschool children will not function as an innoculation; they can only provide a basis for future progress in schools and homes that build upon the early intervention.

Grotberg, E. (Ed.)
Critical issues in research related to disadvantaged children. Princeton: Educational Testing Service, 1969.

As a result of a meeting called by the Research and Evaluation Office of Project Head Start in February, 1968, a series of six research seminars was held between June, 1968 and April, 1969. A particular research issue was studied intensively at each seminar through the

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discussion of position papers presented by authorities in the area. The six research areas were motivation, the teacher and classroom management, Head Start populations, health and nutrition in early childhood, interaction in family life, and the teacher in intervention programs. This volume contains the final versions of the position papers, after they had been exposed to careful criticisms and suggestions. The topic of infancy was not included in the research seminars because several major conferences were held in 1968 on the subject.

* While portions of this volume are directly addressed to periods of development beyond infancy, many of the topics discussed are directly relavent to those concerned with programs for infants.

Grotberg, E. H.

Government policy and programs in early intervention. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

The relations between the policies of government and those of behavioral scientists are examined. Among behavioral scientists, three theories of human growth and learning have differing repercussions for intervention programs. The developmental theories have a common goal; a happy, self-enhancing adult, with development aided by the removal of obstacles and demands. The experiential theorists stress the importance of molding individuals, with programs focused on environmental manipulation. The interaction theories see a continually emerging person, so that programs are focused on the total child in his total environment and aimed at facilitating a match. Government also has no unitary policy concerning early intervention. The two areas where government and science agree are deprivation and early intervention. While research data still do not document any long-range benefits from early intervention, it seems possible that intervention can help to break the cumulative effects of continued deprivation, hence there is agreement.

The government's overriding concern is with the apparent precursor of deprivation, poverty. Title I legislation was aimed at this problem, but was directed toward established schools. The Office of Economic Opportunity (OEO), on the other hand, directed its poverty concerns toward new programs, and made maximum feasible participation of those served mandatory. There have been some conflicts within and between institutions concerned with poverty, deprivation, and early intervention. One conflict centers on parent involvement. Title I efforts, directed toward schools, which keep parents out of the educational process, were thus different from OEO efforts in this way. Moreover, Head Start (an OEO program) children eventually went to public schools, and their parents had become accustomed to involvement. Follow Through is another OEO program that reached the schools. A second area of conflict is program conflict; a pluralistic society concept is gaining acceptance. A third conflict concerns the comprehensiveness of early intervention programs; psychologists tend to focus on cognitive development and social-emotional development, in that order, and ignore (largely) health, nutrition and parent roles.

Since the government is most concerned with poverty, it will find ways for people to get money. If that means jobs, their children will need care. What kind? Are psychologists contributing to government policy in this area? They should be, says the author.

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Grotberg, E. H. (Ed.)

Day Care: Resources for decisions. Washington: Office of Economic Opportunity, Office of Planning, Research, and Evaluation. Washington, June 1971.

This book includes information provided by a variety of authors with program and research experience in day care. The information was compiled in the hope that it would provide resources for decision making by people concerned with research or program planning for day care. The book consists of six parts, each containing one or more chapters.

Part I, "Orientations to Day Care", includes two chapters. The first, Day care settings: Social, cultural and anthropological considerations, consists of four articles: International day care: A selective review and psychoanalytic critique, by D. R. Meers; Day care programs in Denmark and Czechoslovakia, by M. G. Wagner & M. M. Wagner; Child care facilities and the "Israeli experience", by H. B. Gewirtz; and The need for diversity in American day care, by G. S. Lesser. The second chapter is Day Care in America, by I. Lazar and M. E. Rosenberg.

The second part of the book, "Programs for children", includes chapters by J. Bruner (Overview of development and day care); I. Sigel, R. Starr, A. Secrist, J. P. Jackson, & E. Hill (Social and emotional development in young children); J. Kagan (Cognitive development and programs for day care); C. B. Cazden, J. C. Baratz, W. Labor, & F. H. Palmer (Language development in day care programs); and J. L. Gewirtz (Stimulation, learning and motivation principles for day care programs). The last chapter includes an introduction and sections on Principles of behavior acquisition and modification, The roles of motivation in learning analyses, and Behavior technology applied to day care.

Part III of the book, "Adult involvement", includes chapters by E. K. Beller (Adult-child interaction and personalized day care); R. D. Hess, M. Bloch, J. Costello, R. T. Knowles, & D. Largay(Parent involvement in early education), and R. D. Hess, L. Beckum, R. T. Knowles and R. Miller (Parent-training programs and community involvement in day care).

Part IV, "Program supports", consists of chapters by A. D. Peters (Health support in day care); H. G. Birch (Malnutrition and early development), and E. B. Archinard, J. Sale, H. Wasserman, & L. L. McCall (Social work and supplementary services).

The fifth part of the book, "Staff training and delivery services", includes chapters by G. S. Chambers (Staff selection and training) and I. Lazar (Delivery Systems).

The final section of the book is a chapter by F. H. Palmer, C. Cazden, & J. Glick (Evaluation of day care centers: Summative and formative).

* As the chapter titles indicate, this book contains a great deal of information about a variety of issues related to day care. Some of the material is presented very objectively, and some takes the form of a position paper reflecting a particular point of view. An index is provided and should be very helpful to readers interested in particular topics. This book is one of the very few (English language) sources of information about day care programs in other countries; extensive bibliographies are included in addition to considerable detail.

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Heber, R., & Garber, H.

An experiment in the prevention of cultural-familial mental retardation. Paper presented at the second congress of the International Association for the Scientific Study of Mental Deficiency, Warsaw, August 1970.

The rationale behind the Milwaukee infant intervention project, and some preliminary data, are reported. While there has been increasing acceptance of the view that the high frequency of mental retardation among the poor is directly attributable to deprivation of opportunities, the fact remains that most children reared by economically disadvantaged families are not retarded. The authors conducted a survey of the slum area of Milwaukee in an attempt to learn more about the distribution of mental retardation in slum populations. In the first survey, all families with a newborn infant and at least one other child under six were studied. The best single predictor of intellectual development in the children was maternal intelligence. Mothers with IQ's below 80, who comprised less than half of all mothers, had 78.2% of the children with IQ's below 80. Moreover, between 13 and 168 months, the IQ's of children of mothers with IQ's above 80 remained relatively constant (mean at about 90 to 95), while those of mothers with IQ's below 80 showed a progressive decline (mean went from 95 to 65). Furthermore, the lower the maternal IQ the greater was the probability of a low score for the offspring. In a second survey of 519 consecutive newborns in in the same area, fathers, mothers and all children over age two were given the Peabody Picture Vocabulary Test (PPVT). Maternal and paternal IQ were strikingly congruent; of mothers who scored below 70, 65% had husbands who also scored below 70, and only 14% had husbands scoring above 100. Not a single mother scoring above 100 had a husband who scored below 80. Thus, it appears that the high prevalence of mental retardation in the slums is not randomly distributed, but concentrated in families identifiable on the basis of maternal intelligence. Accordingly, an intervention program was begun.

Mothers with IQ's below 70 who had newborn infants were identified, and 20 were assigned at random to each of an experimental and a control group. As soon after birth as the trust of the mother was achieved, the experimental group infants began a structured program of stimulation in the Infant Education Center (from early morning until late afternoon on weekdays), and their mothers began a maternal rehabilitation program which included job training as well as training in home-making and baby care. The infant program is focused on sensory and language development. Progress is assessed with experimental measures as well as standardized tests.

The oldest children at the time of reporting were about four years of age(with a one-year period covering time of entry). On a color-form dimensional preference task (with preference denoting developmental advancement), none of the younger controls and 30% of the older ones showed a dimensional preference, while 60% of the younger experimentals and

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100% of the older ones did so. On a sorting task, the older experimental group showed 91% dimensional responding in comparison with 50% for the older control group. Perseveration decreased from 50% for the younger to 19% for the older experimental group, but increased from 66% to 100% for the controls. The language performance measures showed the most striking differences, particularly in vocabulary production, in sentence repetition, and in grammatical comprehension. Finally, the Cattell and Binet intelligence test data from 24 to 42 months indicated very large group differences, especially in view of the original hope of merely preventing decline in the scores of the experimental group. The mean IQ scores of the control group ranged around 95 during the 24 to 42 month assessment period (seven separate scores). These were approximately in line with those of the original survey subjects, whose scores declined over subsequent months to a mean IQ of about 80 at 48 months and below 70 at 168 months. The experimental subjects' mean IQ scores ranged from slightly above 120 at 42 months to more than 125 at 45 months (eight discrete testings), a marked acceleration over the control group (a mean discrepancy of about 33 points). The authors note that the experimental subjects had undoubtedly received training in skills sampled by the tests, and had also become somewhat test-wise. Nevertheless, they do seem to have demonstrated a capacity for learning, and have opened the possibility of preventing the kind of mental retardation which occurs in children reared by parents who are both poor and of limited intellectual ability.

Hodges, W. L.

The implications of design and model selection for the evaluation of programs for the disadvantaged child. Paper presented at the meeting of the American Association for the Advancement of Science, Chicago, December 1970.

The author discusses the difficulties in identifying effective research strategies for evaluating early education programs, pointing out that too often the all-or-none fallacy (use of all of one approach and rejecting all of others) has prevailed.

In terms of usefulness for program design, any model should specify 1) the process through which program goals are selected (the view of child development) 2) the processes to be used to insure interaction of the children with the instructional objectives (the incentive conditions) 3) the appropriate sequence for the introduction of learning opportunities 4) the external conditions of learning (the way the learning situation is organized). When these four conditions are specified the multidimensional and overlapping nature of programs derived from different models can be seen, and variables can be identified for study. However, there are two few adequately stated, well-conceptualized, generally acceptable objectives and too little communication of those available to determine what is appropriate for comparison.

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Holmes, D.

Report on preliminary impact data from a national survey of the Parent-child Center program. New York: Center for Community Research, 1972.

This report describes the findings of the first phase of evaluation of the Parent-Child Center (PCC) program. Enumerative data relating to the preliminary impact of the program are documented. The second phase of the study will consist of an investigation of impact in greater depth; the progress of fixed samples of families will be evaluated over time.

Thirty-three PCC's were operated at the time of the survey under the direction of the Office of Child Development; 32 of these centers (all but Alaska) were visted by interviewers between October, 1971 and January, 1972. Individual interviews were held with 385 PCC member parents and with 327 staff members. PCC directors also filled out comprehensive forms concerning goals, staffing, educational programs, and other services.

The results indicated that 1,799 mothers, 512 fathers and more than 300 other adults were taking part in the program. The typical mother was in her twenties; relatively few teenage mothers were included. The great majority of urban families were black; most rural members were of Mexican or other Caucasian ancestry. A total of 3,174 youngsters were served; the average age of the focal child was 26 months. Classified according to the way in which they were grouped in the center, the numbers of children in each age bracket were as follows: infants (609), toddlers (1 to 2-1/2 years; 676), runabouts (2-1/2 and older; 791), infants/toddlers (483), toddlers/runabouts (394), and infants/toddlers/runabouts (221). Twice as many children were served in the centers themselves as were served in the home as a part of an outreach effort. A structured developmental model was used by about half of the PCC's. The physical development of infants seemed to be of paramount concern to the directors, with social-emotional development uppermost for toddlers and runabouts. Cognitive aspects of development were second in importance for runabouts. In all but three centers, children received at least one meal per day. Almost all (95%) of the sample of mothers said they felt that their child had learned something useful since joining the PCC. About two-thirds mentioned social skill development and cognitive advancement. Physical development and self-sufficiency (in dressing and personal hygiene) were each mentioned by about 40% of the mothers.

Other findings reported include the medical and dental care received by families through the centers. Also, 1,081 parents were reported to be taking nutrition or menu planning courses (only 322 were doing so two years previously). Slightly more enrolled families were receiving welfare aid then before becoming members, and slightly more had at least one member employed; economic support had been facilitated in both of these ways.

Virtually all (95%) of the parents interviewed stated that PCC had had a positive impact on their lives. A great preponderance of mothers also noted gains in their approach to motherhood. Decrease in use of corporal punishment, increase in the recognition of the needs of children or an attendant ability to meet those needs, and simply greater enjoyment of children were often mentioned.

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In the area of staffing, a clear majority of non-professionals received at least two weeks of pre-service training. Non-professional staff matched the parents they served fairly closely in most demographic respects, with the exception of ethnicity; more staff members were Caucasian and more parents were Black. Staff turnover was high; more staff had left than were employed at the time of the study. However, most who left did so for reasons of self-advancement; their PCC training and experience had enabled them to obtain better jobs.

Honig, A. S.

Infant development research: Problems in intervention. Washington: Day Care and Child Development Council of America, 1972.

Problems, issues, and important aspects concerning infant intervention programs are discussed. In many cases problem areas are raised without suggestions for solution. Nevertheless, this booklet will be very useful to anyone considering an intervention program, and some of the issues are equally important for day care programs striving to provide infant education in addition to care.

Historical problems concerning the potential effects of day care in infants are mentioned first. The maternal-child attachment issue (will day care weaken the mother-infant bond?) is mentioned; this issue is behind the decision of several center intervention programs not to take infants under the age of six months. Program operators must also be aware of individual differences among infants; Bowlby has questioned whether intervention involving early separation of infant and mother might enhance dependency needs or anxieties in certain infants, rather than dilute them. Only by monitoring the individual progress of each child can one become alert to those infants or types of infants for whom certain kinds of programs are not suitable. An open question concerns the long-term effects of day care or intervention on social and emotional development. While it has been argued that extensive intervention may detract from parents' responsibility for childrearing, it may be as likely that the services and support provided foster the growth of parental attachment and responsibility. The effect of early group care on peer relations is important; in one center, it was found that infants reared together in one program and then kept together in another showed a marked preference for each other's company even when new preschoolers entered the program. Strong peer preferences may be both a benefit and a problem.

A variety of factors may influence a director's choice of a particular intervention model; working mothers may be served, legal constraints may be paramount, little research has been done on the home-care model so effects on child development are not yet known, and so on. The center model has the advantage of being able to provide extensive services such as pediatric care and nutritious meals; it may also be able to provide a more intensive program. One possible drawback is that it may alienate parents and the community with an aura of "we-know-what's-best-for-baby". Such centers are also very costly. The tutorial model, in which trained personnel work with young children in their own home, has been shown to effect improvement in developmental scores. The home-visit model has the important advantage over the tutorial model of parent involvement; by training the parent to work with

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her own child more lasting gains may be achieved, in the parent's self-confidence as well as in the child's performance. The parent-group model has the same advantages but does not take place in the home; parents are taught intervention techniques in groups. In any program involving parents (and since the goal is to support and supplement but not supplant parenting, they should be involved) it is important to make clear that differences are not automatically equated with deficits.

Staff selection is discussed; staff may well be the most important aspect of infant care programs. Automated teachers, while able to provide stimulation, should be considered an adjunct to, not a substitute for, human teaching. Staff diversity is recommended. Staff training is very important. Some theoretical issues related to training revolve around the program's view of the role of the teacher, or home visitor (teacher only, friend, mother-surrogate, or whatever). Decisions must also be made concerning practical problems in staff training (such as how to structure pre-service and in-service training or whether to close the program during training).

Problems associated with program operation include staff assignments; because of the importance of the attachment process in development, the assignment of babies to particular caregivers so that each child has a "special person" is strongly recommended. How many babies to care for is another question; smaller programs may be preferable for providing optimal care conditions. How long a period of time an infant should spend each day at a center program is a question for which there is no ready answer; the differences in impact on social-personal or cognitive attributes between a few hours' stay and 10-12 hours per day is not known. Age at entry is another decision to be made; so far no intervention programs have shown detrimental effects, but few have taken very young infants. Lally has reported some preliminary data indicating that a small group of infants for whom intervention began (in the form of information about nutrition and child development to the mother) three months prior to birth had Cattell IQ scores averaging 10 points higher than controls at six months of age. Decisions about program content must also be made, including the amount of structure in the program. All programs should stress the importance of using caregiving routines (such as feeding and diapering) to set the time and place for learning activities. Prevention of friction among personnel may be aided by clear grievance procedures and frequent small staff meetings.

The whole area of assessment for infant intervention programs is thorny because so few measuring instruments are available. The author discusses the varieties available and pros and cons of developmental tests, learning and conditioning measures, naturalistic observations, language development measures, whether to measure the product or process of development, how to train testers, how to assess caregivers, maternal measures and the importance of looking at maternal tempo and style as well as teaching content, non-obtrusive measures such as attendance, how to get information that has been obtained through measurement back into the program, and possible sleeper effects (which might show up much later; the whole question of under what circumstances is the effect sustained).

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Problems in evaluation (such as whether to use longitudinal or cross-sectional controls), and complex motivational factors are discussed. Under the latter comes the fact that programs depending upon voluntary acceptance of the intervention (and no one is arguing for enforced acceptance) have automatically introduced a motivational variable into their design; differences in maternal feelings and attitudes may affect subsequent development more than any specific care or teaching practices in the program. The ethical issue of a project's responsibility to provide auxiliary services to families is also discussed.

Honig, A. S., & Brill, S.

A comparative analysis of the Piagetian development of twelve month old disadvantaged infants in an enrichment center with others not in such a center. Paper presented at the meeting of the American Psychological Association, Miami, September 1970.

The Syracuse University Children's Center infant program is based on a Piagetian cognitive developmental approach to infant learning. In this enrichment program, effort is made 1) to change the cognitive structures or processes available to the child, 2) to speed up the acquisition of these structures, and 3) to help generalize the applicability of a cognitive schema or structure to new sets of stimuli. Intensive teacher training is based on this model. It includes both didactic training (theory and concepts) and demonstration using volunteer mothers and their babies. The teachers are encouraged to stimulate each infant to respond even minimally and to devise ways of modifying tasks with sensitivity to the baby's performance level. Task sequencing and language skills are also emphasized. Verbal labeling is used during caretaking routines as well as in structured learning situations. Teachers are assigned to specific babies (four) in accordance with the emotional needs of infants for attachment to a special person. Infants enter the half-day program at six months of age. At 12 months, they are tested with the Cattell Infant Intelligence Scale (a standardized general infant IQ test), with the Early Language Assessment Scale (ELAS), and with the Piagetian Infancy Scales (designed to assess specifically Piagetian developmental achievement, and constructed from a variety of sources). In this paper, scores obtained at 12 months of age on the Piagetian Scales are presented.

The experimental subjects were eight male and eight female black infants who had attended the half-day enrichment program for six months (attendance ranged from 42 to 124 days with a mean of 84 days). Control subjects were eight male and eight female 12-month-olds who had received no intervention. Mothers of both groups had a mean 10th grade education, and no work history or a semi-skilled work history. Fathers had a high school education or less; families of both groups earned $5000 or less per year. The six Piagetian subscales on which the subjects were tested were object permanence, means-ends scale, development of schemas in relation to objects, development of causality, developmental achievement of the construction of the object in space, and development of vocal and gestural imitation. The approximate testing time was 1-1/2 to 2 hours and most infants required two or three separate sessions to complete the scales.

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When the mean scores of experimental and control subjects were compared, a significant difference between the groups was found for the object permanence ($p < .005$) and means-ends relationships ($p < .025$) subscales, and for the total scores ($p < .05$. Significant differences between the groups were found for 14 specific items (within the scales); of these, differences on 11 of these 14 items favored the experimental group subjects. In terms of sex differences, experimental male infants scored significantly higher than control males on only the object permanence scale. Experimental females received significantly higher scores than control females on five of the six subscales (all but development of causality) but only the total score difference was statistically significant. Cattell IQ scores were not significantly different for the experimental and control groups either in general or for the sexes considered separately. However, experimental females scored significantly higher than experimental male infants (for control subjects, the sex difference was not significant). Since the experimental infants did not differ by sex on the Cattell scales when they entered the program at six months of age, the authors conclude that females benefited more than males from the enrichment program. They suggest that this may be a result of differential home treatment; there is some evidence that low income mothers are more controlling of boys than of girls.

The finding that significant differences between experimental and control subjects on the Piagetian scales were limited to the object permanence and means-ends scales may have been due to differential task teaching; a frequency count of teacher activity revealed that the tasks by far most frequently carried out were in the areas of object permanence, means-ends relations, language stimulation, and general modeling.

The authors suggest that their obtained differences between experimental and control subjects as early as 12 months of age may have been due to their explicit Piagetian developmental curriculum. Other studies in which differences in performance on Piagetian tasks have not been found in such young children have typically compared infants from middle-income homes (said to have a "hidden curriculum") with infants from low-income homes. The authors suggest that the "hidden curriculum" of middle-income homes may be less specifically oriented toward Piagetian developmental tasks.

* It has also been argued, however, that within-class differences in childrearing practices are greater than between-class differences, and this could readily account for the lack of class differences in previous studies with very young children. It is not particularly surprising that infants trained on specific types of tasks perform better when tested on similar tasks than infants who have not had training. The specificity of such training is implied by the finding that significant group differences were obtained on tasks similar to those emphasized by the teachers. The important question is, are there long-term advantages in having had these specific experiences at an early age (is development accelerated, or is a slowing in development avoided)? Because their study is longitudinal, the authors may be able to answer such questions.

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Honig, A. S., Caldwell, B. M., & Tannenbaum, J.
Patterns of information processing used by and with young children in a nursery school setting. Child Development, 1970, 41, 1045-1065.

In this article, A Procedure for Patterning Responses of Adults and Children (APPROACH) is described and illustrated. The APPROACH method was developed to describe the social environment of young children; in this particular case it was used to describe 20 minutes of structured learning time and 20 minutes of unstructured or free-play time for 32 children, eight in each of four age groups (1 year olds, 2 year olds, 3 year olds, and 4 year olds). The children were observed in their nursery school day care program and the observation records were coded using the APPROACH system. In this article, only patterns of adult and child cognitive behaviors (information-processing) are reported. The authors comment that while much is being written about what preschool habitats ought to be like, relatively little effort is being made to describe what actually takes place in a preschool environment. The information-processing transactions involving the 15 to 54 month subjects of this study are described in some detail, and provide a good illustration of the APPROACH system.

The data analyzed indicated that for the one and two year olds, 97% of the total of all information-processing behavior transactions came from adults; for three year olds it was 90%, and for four year olds, 70%. When adult behaviors related to the child's information-processing were broken down, it was found that demonstration dropped from comprising almost 100% of such adult behaviors toward one year olds to about 70% for the four year olds. Casual conversation went from about 95% to 52%, and inquiring-informing went from 98% to 94%. Similar patterns of child-initiated responses were found, although the disproportions were not quite so dramatic. Thus it appears that even when children are in effect surrounded by other children of the same or similar ages, adults are overwhelmingly important for cognitive input during the first 4-1/2 years of life. The authors suggest that these data point out and support the importance of high teacher-child ratios in early enrichment programs.

A second major conclusion they draw from the data is that, in group settings, the relative proportion of dyadic encounters between an adult and an individual child decreases with age, while the proportion of encounters between an adult and groups of children increases. This shift is prominent by three years of age. With increasing age, the children also seem to become more aware of and more inclined to communicate with other children in terms of both simple conversing and more complex forms of information-processing. The proportion of self-directed communications also decreases sharply with age.

This study provides an example of the way in which contrasting environments can be meticulously described. When such descriptions have been related to developmentally relevant child behaviors (language learning, scholastic achievement, intelligence, emotional maturity, etc.) then, and only then, will the kinds of data necessary for the design of optimal supplementary environments be available.

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Huntington, D. S.

Experience with training staff of infant care programs. Paper presented at the meeting of the American Public Health Association, October 1970.

The process of finding and training people to work in infant care programs (of all types - not just group center care) is discussed.

In selecting people, an interview should be used to judge the applicant's attitudes toward children, new ideas, discipline, etc., and to exclude people with obviously inappropriate characteristics. This, however, is very difficult, and a trial period is necessary for both the employer and employee. Employees in child care should be willing and eager to go on learning and developing. In selecting staff, bilingual or bicultural competence may be important.

A caregiver should be patient and warm toward children, should be able to give and receive satisfaction from the baby, should be energetic and in good health, should have an understanding of children's basic needs, including the necessity for more than simply physical care, must be flexible and understanding of feelings, must be acquainted with and appreciate various cultures, must respect the child and his family, whatever their circumstances, must be able to work with other adults, should be interested in learning, should show initiative and resourcefulness in working with children, and must be aware of the importance of controlling undesirable behavior in babies but not be excessively punitive.

Pre-service and in-service training are both vital to a good program. The elements of a training program are: 1) a curriculum stressing normal growth and development, pathology, and the child's ecology; 2) observations of children in many different settings; 3) demonstration of specific infant stimulation techniques; 4) ways of observing a child and monitoring his development; 5) getting along with staff and relating to parents.

The process of creative supervision is also critical. A supervisor should: 1) increase awareness of the program requirements; 2) help translate information to on-the-job application; 3) provide support during the first scary days; 4) make sure directions are clear and understandable; 5) increase feelings of competency, pride, and self-respect; 6) strengthen perceptiveness by raising questions; 7) solicit resources to keep the job interesting; 8) encourage spontaneity, warmth and flexibility in daily care, and 9) be available.

Two concepts form the basis of successful training: first, a child's behavior, no matter how young he is, is meaningful. Second, what the adult does is important and has a major impact on the child's development.

Some conditions likely to facilitate the effective operation of a program are: 1) an established grievance procedure (for both staff and parents), 2) frequent informal sessions to discuss problems and conditions, 3) open awareness and acknowledgement of difficulties related to ethnic differences, 4) openness and self-awareness encouraged at all levels, 5) awareness of each staff member as an individual with an outside life, 6) an awareness that the setting should not be exclusively child centered (babies should not expect their

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needs to always take precedence over those of adults), 7) specific arrangements concerning parents and staff, with help in role clarification, 8) feedback to staff regarding their performance, 9) need for staff counseling at all levels, if necessary, 10) flexibility regarding both adults and children involved, 11) acknowledgement of staff growth and change (they do not remain trainees), 12) provision for continuity in the case of staff turnover, 13) clarification of work arrangements, and 14) opportunities for constant learning and outside stimulation.

Huntington, D. S.

Programs of child health care: The United States need and what should be done. Paper presented at the meeting of the American Academy of Pediatrics, San Francisco, October 1970.

The author strongly urges pediatricians to work for both coordinated, adequate services which would expand the options open to families, and services with high, enforced standards to insure that they help children, and to lobby for financial support for the programs. The need for such programs is documented.

Huntington, D. S.

Tradition and innovation in early childhood education: Are there such things? Paper presented at the meeting of the National Association for the Education of Young Children, Boston, November 1970.

The author argues for an ecological approach to the child and family, an awareness of the interrelationships among significant developmental factors and thus a developmental education approach. Psychologists have moved from a belief in fixed intelligence and predetermined development to viewing the human as an intrinsically motivated learner. This has led to the establishment of preschools which are child-centered rather than adult-centered, as they had been previously. It is really only very recently that child development programs have been seen as offering something for all children, and being family strengthening programs.

Education is not just cognitive activity; it must not ignore the personality and social context in which thinking occurs. Through a relationship with an adult, children learn that the world is exciting, and its rewards are greater than its disappointments. If their needs are not met, they may merely learn to survive; their motivation will be just as great, but it will be directed toward protection rather than advancement and they will learn not to respond or pay attention.

Intelligence is reflected in how an individual behaves when he doesn't know what to do; unintelligence is not less intelligence but a different style of behavior arising from a different set of attitudes.

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The author argues that individual differences in needs and preferences must be recognized, and children must be educated for self-esteem, competence, and the ability to learn. Developmental goals for a child from birth to age six are listed.

We need to think about what kinds of people make good teachers for young children, and perhaps to rethink the union requirements for such teachers. Parent participation in educational decisions is very important, both so that the parents acquire a sense of being able to effect change and so that education will be responsive to the home.

Ethnic identification and relevance in educational programs are seen as important; ways in which cultural pluralism can be taught are suggested.

With regard to very young children, 17 characteristics of the environment important for infants are listed.

Flexibility regarding age grouping of children and the inclusion of handicapped children in programs are recommended. Finally, the author argues for education for developmental tasks, not just for fact accretion; for not using IQ tests as a measure of program effectiveness; for educators to work for social change; and for individualized instruction; discovery learning; learning in the context of a caring relationship with teachers; encouragement of intrinsic motivation and exploration; and use of exciting materials for learning.

Keister, M. E.

Patterns of daytime care of infants under three years of age. University of North Carolina at Greensboro, Institute for Child and Family Development, 1965.

This summary describes the results of a survey undertaken to provide a picture of mothers of infants and toddlers (children under three). Of interest were such questions as how many mothers were employed, how many babies experienced some supplemental mothering where and by whom, etc.

Based on the 1960 census data, a modified (to include approximately half white and half black families; although blacks comprise 25% of the population in the area, they have greater need for supplemental care for their children) area sample of Guilford County was drawn to include 251 white and 265 non-white urban families. One-hour interviews were conducted in the mothers' homes. A household was considered to use supplemental mothering if a child was looked after regularly for six or more hours each day by someone not his mother.

The results indicated that 26% of the white and 30% of the non-white babies experienced some form of supplemental mothering. Of families earning less than $3000 per year, 90% had

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their babies in care at home; of families with incomes between $3000 and $9000, 83% had their babies cared for at home, and of those with incomes greater than $9000, 26% had arranged for care outside the home. Of the 1000 babies in daytime care outside their homes, 1/3 of the non-white and 2/3 of the white infants were in day care homes; most of the other non-white babies were cared for by relatives, with a few in centers, and the remainder of white babies used both types of care also. About 58% of the non-white and 49% of the white babies had been younger than six months of age when regular alternate care began. While 84% of the mothers said they were well satisfied with their child care arrangements, there was proportionately more dissatisfaction among mothers of babies cared for away from home, and of those dissatisfied, over half were non-white. When mothers who had left employment due to problems connected with child care were added to those employed, a potential day care consumer estimate of 39% of white and 55% of non-white mothers of children under three was obtained. When mothers who said they would work if care were available were added to those already working, an overall estimate of 63% was obtained. Non-white mothers expressed a preference for care in a nursery center (60%) but only one-third of white mothers gave this as a first choice. Only 7% of white and 3% of non-white mothers chose day care homes first.

This survey describes the need for supplemental mothering for very young children, particularly by non-white mothers who have unskilled (90% in this sample, compared with 50% of white mothers) jobs with low pay. The authors point out the need for more knowledge about who cares for such children, and how well, in addition to the mothers' need for help in locating quality care.

* While generalization from this survey must be limited by its specificity, it does illustrate the fact that many mothers work and thus need to obtain child care arrangements for their children, and that this need exists for mothers of infants, not just preschool children, and particularly for non-white mothers.

Keister, M. E.

A demonstration project: Group care of infants and toddlers. Final report submitted to the Children's Bureau, Office of Child Development, U. S. Department of Health, Education, and Welfare, June 1970.

This report provides information concerning the establishment, operation and evaluation of the program established at the University of North Carolina at Greensboro to demonstrate quality care of infants in groups. During the calendar year of 1966 the program was planned; the nursery opened in June 1967. This final report summarizes the program during the three year grant period ending in June 1970. With new funds, the nursery is still in operation.

In 1969-70, 31 children were enrolled; 11 were three-year-olds, all but four of whom had been with the project since before they were one year old. Ten children were between one and two years of age, and ten were under one. Most of the parents were employed as staff or faculty at Greensboro universities; eight of the 31 children, however, were from low-income

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families. The project was originally designed to enroll middle-class children, because of the research objectives involved. It was felt that the effects of group care per se would be clearer if middle-class children in group care were compared with middle-class children receiving good home care; the comparison of infants receiving quality group care with others receiving inadequate home care in deprived environments would provide less information about group care. The good home and the good nursery school were chosen as models for program development; the author describes features of a good life for infants and toddlers living in groups during the day.

The difficulty in finding a suitable physical setting for such a program is described. The ultimate solution to the difficulty for this particular project was a new education wing of a church in the community (in 1971, the project moved to new quarters at the university). The staffing of the program is outlined. Paraprofessionals were recruited to work as caregivers and have worked out extremely well; turnover for all staff has been minimal. When the program began, the staff to child ratio was 1:4. After a year, as the staff became more experienced, the parents became more confident, and the evidence that the babies were thriving grew, the ratio was changed to 1:5 for babies under 18 months of age, 1:6 for two-year-olds, and 1:10 for three-year-olds. This program, however, has extra adults not included in those ratios (the director, the nurse, and often a student assistant) to help out at busy times. The center is open for ten hours daily, but no staff member works more than eight hours, so times are staggered. The author points out that infant/toddler care of high quality is bound to be somewhat costly (for this center for 20 infants, estimated cost per child per year is $2420; for a center of 30, the estimated cost is $1,973). It is her strong feeling that volunteer assistance as a way of cutting staff costs (the most expensive part of a program) will be a solution only if the same volunteers come every day. Otherwise, the center will have to give up on the effort to provide continuity in caregiving, an unacceptable alternative considering the present knowledge. The staff of this program also feel strongly that small groups of children should be kept together, and believe that it is better to group a small number of children together in a room with one caregiver (the practice in this program) than to group twice as many babies in a larger room with two caregivers. (They admit that this is a personal preference based only on experience and observation, not "hard" research evidence). Transportation to and from the center is not provided; a major advantage of this is the frequent casual contact between staff and parents which facilitates communication and planning for the child.

The evaluative part of the project was undertaken to determine whether or not there were any deleterious effects of group care on infants. Fifteen pairs of subjects, all from middle-income homes, were matched on sex, race, age at entering the project (as an experimental or control subject), and less exactly on birth order, age, and education of parents. Initially, the home (control) children had higher scores on all measures (physical development pediatric assessment, Bayley mental and motor scales, the Vineland Social Maturity Scale) except the Preschool Attainment Record (PAR), although none of the differences were significant. At the last testing session, the center (experimental) children had higher scores on all measures; the Bayley mental score and the PAR differences were statistically significant. Thus, obtained differences favored the center group, and could not be attributed to initial superiority. However, all differences were small in absolute size, and it is pointed out that such differences would not be sufficient reason to argue the superiority of center over home care. The methodological difficulties in comparing illness rates were substantial (largely due to reporting difficulties); the results suggested that center babies had more illnesses than home babies, and

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the major differences were in diaper rash and respiratory illnesses.

At the end of the report, the question "Shall we serve infants in group care?" is raised. The historical trends in attitudes toward group care are reviewed, and some practical questions are posed. The demand for care for young children exists (more mothers are working or returning to school when their children are very young). The author and staff of this program feel that the provision of high quality, individualized care for infants in groups is possible, but very difficult. Their finding that center children showed no deficits in relation to home children implies that serving infants in group care is acceptable if, and only if, caregiving of a certain quality is provided. They urge great caution and advise putting the babies' interests ahead of new projects, of mothers' demands, and of the excitement of another pioneering effort.

King, W., & Seegmiller, B.

Cognitive development from 14 to 22 months of age in black, male, first-born infants assessed by the Bayley and Uzgiris-Hunt scales. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

This paper describes some preliminary results from a longitudinal intervention study being conducted in Harlem with first-born, black male infants (at the Harlem Research Center, Institute for Child Development and Experimental Education; see also Palmer, F. H. in these abstracts).

At 14 months of age, 51 infants were tested and their mothers were interviewed. Some of the infants were retested at 18 months and 22 months, with the numbers varying with the test and age. Data on all tests at all three times were obtained from 27 infants. The median age of the mothers was 19 years (range 14 to 34 years) at the time of giving birth. Parental educational attainment level was quite diverse; 54% of the mothers and fathers had completed high school, and the range in education was from eighth grade to graduate study in college. Household composition was diverse, ranging from 2 to 14 persons, with 12 cases of a nuclear family (mother, father and child) living together, and a grandmother included in about one-third of the households. Half of the mothers lived on welfare or Aid to Dependent Children (ADC) allowances. In 31% of the families the husband had some type of employment.

Infant scores on the Bayley mental and motor scales and on seven Uzgiris-Hunt scales (assessing Piagetian development) are discussed in some detail. For 28 subjects in the longitudinal sample, the mean Bayley mental score at 14 months of age was significantly above the standardization sample score at 14 months; at 18 and 22 months it had dropped almost to the standardization sample level. It is likely that the volunteers were a selected sample; considerable attrition occurred from the subjects originally selected from birth records. The authors state that these data suggest that scores in the target population probably show some drop after 14 months. The variability in the scores of the 14 month sample was small; Bayley reported a smaller variability for black children in the 14 to 15 month age groups in comparison

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with whites, and explained it as a sampling artifact. However, with the relatively homogeneous sample (self-selected) in the present study, one would expect variability to decrease or stay the same with age. The variances at 18 and 22 months were substantially larger, reflecting large changes in both a positive and negative direction for different children. Relative ranking within the group, as reflected in correlations across age, remained fairly constant across the eight month interval. Examination of patterns of change indicated very large individual differences, including increases of 25 points and deceases of 40 points over the eight month period.

Scores on the Bayley psychomotor scale did not change much, and remained about 10 points higher than the standardization sample at all three ages. In Bayley's sample, the precocity of black infants in motor development present up to about 15 months of age had disappeared by about 20 months. Other researchers have found continued superiority in black infants through two years. The explanation remains unclear. The predictive validity across the eight month time period studied was poor for the motor scale; the authors suggest that cooperation and imitation required at 18 and 22 months of age may be a factor in inconsistent scores.

The Uzgiris-Hunt scales also had low predictive validity when 18 month scores were included, but a correlation of .56 was found between 14 and 22 month scores. The authors again suggest 18 month autonomy as a possible explanation. At 14 months, Vocal Imitation was uncorrelated with other Uzgiris-Hunt subscales or Bayley scores, but at 18 months it was significantly related to the Bayley mental score and two Uzgiris-Hunt subscales, and at 22 months it was substantially related to the Bayley mental scale (r = .54) and one other subscale. Item analysis data confirmed the finding that with age, verbal comprehension skills are increasingly required in order to pass a variety of tests of other ability.

The results clearly indicate that a total score can be achieved in a variety of ways, and a finding of no difference in total score between two comparably aged groups of children may be misleading, since differences may be obscured by compensating factors. The authors also raise the question of how one judges what an item requires by way of verbal comprehension, motor ability, or perhaps acquiescence to, or adoption of, an examiner's request.

Lally, J. R.

A study of the relationships between trained and untrained twelve month old environmentally deprived infants on the "Griffiths Mental Development Scale." Paper presented at the meeting of the American Educational Research Association, Chicago, February 1968.

The general hypothesis tested was that training or experience on specific motor and mental tasks will increase the probability that a child will score higher on a test of mental development than a child with no training in those tasks.

Before describing his study the author reviews some investigations of the relationship between intelligence in young children and their social class and/or racial status as well as

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some issues concerning the measurement of intelligence in infancy. Some evidence for the superiority of the Griffiths infant intelligence test is reported.

The subjects were 89 twelve-month-old infants born in Gainesville, Florida in 1966 to mothers economically classified by the hospital as "indigent". The method of assignment to experimental and control groups minimized contamination through social or other contacts among mothers. The 53 experimental subjects were visited once a week in their homes by a Parent Educator (a woman from the same disadvantaged population). She taught the infant's mother some exercises designed to involve the mother and baby in cognitive games and tasks. The control group consisted of 36 subjects who were tested between twelve and fourteen months of age with the Griffiths test (as were the experimental subjects) but received no intervention. The Griffiths Scale consists of subtests in five areas: locomotor skills, personal-social skills, hearing and speech skills, eye and hand coordination skills, and performance skills. An overall score, the General Intelligence Quotient (GIQ) is obtained in addition to scores for each subtest.

Within the total subject sample, 21 children were first born (the first child in their family) and 68 were later born. No overall effect of birth order (first versus later born) was found, but the means on all six subtests of later born experimental babies were higher (although not significantly so) than those of first born experimental babies and the same was true for control subjects, with the exception of the locomotor test on which first born controls scored higher than later born controls. Some cross-group differences were also found. Among all subjects, there were 63 Negro infants and 16 white infants; no overall difference between the races was found. The white children scored higher than the Negro children on all tests in both the experimental and control situations, although many of the differences were very small. A few cross-group comparisons were significant. There were 44 male and 45 female infants in the total group of subjects; experimental females scored higher than experimental males on all six subtests, and control males score higher than control females on all but the hearing-speech subtest. An analysis of the results led to the conclusion that female infants benefit from this particular type of stimulation a great deal more than males. On the locomotor test experimental females and control males scored high and control females and experimental males scored low. If the stimulation materials speeded the progress in locomotor skills for females but retarded progress for males, as these results suggest, this might explain the lack of results indicating the superiority of Negro infants over whites in motor skills (documented in several other studies).

The results provide at least partial support for the hypothesis that trained infants would score higher than untrained infants. The experimental group taken as a whole scored significantly higher than the control group on the eye/hand and on the hearing/speech subtests.

The results also point up the importance for infants of measuring instruments which separately assess the components of intelligence. Many more differences between control and experimental subjects were found on the eye/hand and hearing and speech subtests than on other tests. Such findings provide researchers with an indication of where their training has been most and least effective.

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Lally, J. R.

Syracuse University Children's Center: A day care center for young children. Progress report submitted to the Office of Child Development, U. S. Department of Health, Education, and Welfare, February 1971.

This progress report includes a description of the Syracuse University Children's Center and some results of the program.

Some anecdotal reports written by the home visitors about the infant and his family are included to emphasize the fact that every one of the families in the disadvantaged group in this study is faced with devastating problems. The people served by this center live in the inner city; 65% of the children are black; 77% of the families have a mother only. The natural father was viewed as the child's father figure in 45% of the families. None of the mothers had a high school diploma at enrollment, but seven mothers have obtained a diploma or its equivalent since the program began. Of the mothers, 28% were employed full-time, 6% part-time and 24% were in training or school. Many young mothers are included in this program and 45% of the mothers lived with their parents.

The home intervention program included two groups of mothers, those who entered the program during pregnancy (perinatal group) and those who entered when their infants were about six months old (six month group). Mothers in both groups were visited once a week by a Child Development Trainer (CDT) who supplied information necessary for the growth and development of the fetus and young infant. The nutritional emphasis of the prenatal program is described along with some data. Frequently, the clinic recommended special diets for the prenatal subjects; the CDT's find that these diets are poorly understood and rarely followed. Seventeen perinatal mothers reported eating laundry starch, clay, seeds, unusually large amounts of ice (one tray or more per day) or other nonfood items. The data indicated that the women with the poorest initial diets showed most improvement; they were being helped by the CDT and the nutritionist (working through the CDT). The nutrition instruction of the CDT's did seem to influence the mothers' feeding practices for their six-month-old infants. For example, the five foods emphasized by the CDT's (fruit juice, cereal, fruit, vegetables and meat) were reported more frequently by mothers in the perinatal group than by mothers in the six-month entry group. Few differences were related to ethnicity or to participation in the Young Mothers' Educational Development (YMED) program for school-age pregnant girls. The data did indicate that further efforts are required, particularly in discouraging the feeding of candy, soft drinks and sugar water to young infants. Considerable detail on feeding practices is provided in this progress report.

The six-month scores on the Cattell Infant Intelligence Scale were compared for children in the perinatal and six-month groups, and each group was further divided into children whose mothers had been in the YMED program versus those whose mothers had not. The analysis of scores for 58 black infants indicated that IQ scores of the perinatal group infants were significantly higher than those of the six-month-entry infants, and this was true for the entire group, as well as for boys, for girls and for non-YMED mothers tested separately. The highest mean IQ score (117.3) was for the perinatal, non-YMED infants, followed by the

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perinatal, YMED (111.5) infants, the six-month-entry YMED (160.6) infants, and the six-month entry, non-YMED (101.3) infants. All of these results indicate a developmentally-enhancing effect of interaction and enrichment when delivered from the prenatal period onward, especially when such service is provided for the total family.

At six months of age, the infants enter a center-based program for four hours a day, five days a week. The program emphasizes Piagetian developmental goals. The following measuring instruments are used to assess socialization variables: a weekly home visit report (WHVR), a 60-item checklist of socialization variables; the Implicit Parental Learning Theory Scale (IPLET) which is used in an interview to assess childrearing practices; the inventory of Home Stimulation (STIM) consisting of 72 items describing the home environment; and the Infant Behavior Record from the Bayley scales, providing a description of infant-tester social interaction. Data on the relationships between socialization and cognitive variables for 29 twelve-month-olds are reported in some detail. The Piagetian measure of cognitive development was related to six of the eight WHVR variables, and to three of the eight STIM variables. Piaget scores were also higher for infants of younger mothers ($r = -.41$ between mother's age and infant's score); this may indicate that younger mothers are more amenable to suggestions and ideas about childrearing and developmental facilitation. The developmental IQ (Cattell) was related to three WHVR variables. Since different clusters of variables are related to the two cognitive measures, it appears that they measure different aspects of development (which in turn are related to different environmental conditions). They are not entirely independent, however; the correlation between the Piaget and Cattell scores was .58.

Developmental data are reported for some infants tested with the Cattell scale at 6, 12, and 18 months of age. There was no significant change in mean score between 6 and 12 months (based on scores of 42 infants). A significant mean increase of 11.4 IQ points between 6 and 18 months was obtained for 24 infants, and a mean increase of 11.3 points between 12 and 18 months for 26 infants was also significant (scores decreased for only three of the 26 infants). Thus a highly significant increase in IQ scores followed an initial six month holding period after entry into the program.

Peabody Picture Vocabulary Test (PPVT) scores for 219 center children aged two to three years of age were found to be unrelated to sex. Middle-class children had significantly more correct responses than lower-class children on eight items. While the overall effect of ethnicity was not significant, lower-class black children performed better than lower-class white children. For children three years and older, no sex or ethnicity differences were found, and middle-class children generally did better than lower-class children, but the degree varied with age.

Data are also reported for 20 children three years of age and older who transferred from the children's center program to another Syracuse University day care program. When a matched group of children from the new center was compared with the transfer group, scores on the Illinois Test of Psycholinguistic Abilities (ITPA) did not suggest wide discrepancies in linguistic functioning between the two groups. There was some indication that the transfer group (children who had been in the Children's Center) achieved higher Stanford-Binet (S-B) scores, although the results were inconclusive.

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Follow-up data were available for 24 children who had been in the Children's Center program and gone on to public school; 11 were from low income homes and 13 from middle income homes. At the end of kindergarten, the low income group's mean S-B score had regressed to its level at one year prior to leaving the center but the mean for middle income children regressed only three points. At the end of first grade, the low income group had dropped one mean IQ point, but the middle income group mean IQ had increased almost six points. When in the center, the low income subjects had dealt successfully with items at, and one year beyond, their age level, but after having been out of the center one and two years they lost this ability. The middle income children passed some items considerably beyond their age level, particularly verbal items. The point is made that the public school situation differs substantially for low and middle income families in the area; qualitative school differences as well as personality differences in the children may account for some of the regression occurring among children from low income homes.

* This report provides considerable detail concerning the progress of children; the program promises to provide some relatively long-term follow-up data.

Lally, J. R.

Child care in the United States: Politics, business, research and/or service. Journal of Clinical and Child Psychology, 1972, 1.

The author notes that opinions on child care vary with the source and that to many, child care has become synonymous with day care, which in turn has emerged as a major political and business issue. It is important to realize that child care and day care are not synonymous and that many different kinds of child care arrangements are possible.

The child care models most visible have been nursery schools (which are notoriously middle-class and do not meet the needs of working mothers or of children under three), and day care centers (both the grassroots type, often providing care of low quality, and the research type, often of high quality but inflexible in selecting children and responding to family needs). A third type of care, Family Day Care, has been plagued with inadequately trained and paid workers who tend to function as mere baby-sitters.

Those who argue for going slowly in revising child care arrangements (such as psychologists, licensing agents, child development experts, minority groups) are faced with such facts as increasing maternal employment and increasing mobility and therefore, less availability of relatives for help with child care, increasing post-high school enrollment, changing sexrole definitions, and rising welfare costs.

The author argues that comprehensive child care services are not out of reach of most communities if existing services are organized, and if the four major criticisms of current

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facilities are dealt with: 1) poor quality, 2) insufficient quantity, 3) neglect of individual needs, and 4) parental fear of loss of customs and culture. He goes on to provide a model for such a comprehensive service, the hub of which is a City Child Care Center. This facility would perform many functions. It would be an information center, distributing information to and from the various child care components in the city, and would have information concerning costs, hours, program style, age, staff training, cultural composition and emphasis, etc. It would also serve children ranging from infancy through high school, and would be used as a training base for all city operations, with both inservice and preservice training. Staff members (child care specialists) would also act as quality control teams, visiting the various facilities and providing consultation. Radiating from this hub facility would be all of the various child care services, including 24 hour family care homes, private day care and nursery schools, church and community centers, temporary foster homes, parent and neighborhood cooperative child care centers, etc. Variety in facilities should be great, so that selection could be made according to need. Since a family's needs change frequently, as work patterns and children's ages change, variety in facilities is critical.

Lally, J. R., Honig, A. S., & Caldwell, B. M.
Training paraprofessionals for work with infants and toddlers. Unpublished manuscript.

The authors discuss the issue of how child care workers should be trained. Noting that the dissemination of a training process is a difficult endeavor, they provide some guidelines for training paraprofessionals.

Of critical importance to success in training are the preconceptions of the program director and trainers toward the people they select; their chances for success will be much greater if they believe that they are selecting the best people for the job. In the Syracuse University Children's Center, the children experience as many different life styles, personalities and cultures as is possible; staff members are men and women, young and old, rich and poor, fat and skinny, black, brown and white, formally educated and practically educated.

The selection of paraprofessionals is seen as one of the keys to success. Priorities should be clear in advance of hiring; priority is recommended for people of the same ethnic group as the children being served, for men (not in the sense that they warrant preferential treatment, but to insure that some male caregivers will be available to children), and for parents of the children in the program. Methods of selection vary. Potential teachers can be selected on the basis of clinical observation of their interaction with a group of children, through the use of a screening battery which might include such things as gauging reactions of potential teachers to videotapes, or through an interview system of open-ended questioning and role-playing. Both the technique or role taken by the teacher (strategies and methods consciously adopted to accomplish objectives) and style of the teacher (personality traits and attitudes) have important consequences for caregiver success. In selection, an attempt should be made to uncover information about the candidate's style that might be resistant to change; this can be done through role-playing and questioning. Selection should be based

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on an estimate of potential to handle training and grow with it, rather than on existing competencies. It is also important to remember that everyone in a child care facility, not just the caregivers, should have some basic skills and attitudes enabling him to relate successfully to children.

Before training can begin, decisions must be made concerning the organization of training groups (hierarchical or cooperative structure) and the duration of training (ratio of preservice to inservice training, etc.); some materials available for use in training programs are listed at the end of this paper. A variety of techniques can be used. Lectures and large group discussions about abstract ideas are not recommended; if they are necessary, they should be liberally laced with questions to encourage trainees to check and clarify their ideas. Direct, supervised work experiences and role-playing are effective devices. There should be time for small groups to air and discuss problems, complaints, suggestions, and changes. The paraprofessional should be asked how to simplify a game for a particular baby and how to challenge another one.

Trainers must watch out for the disbelief-indulgence syndrome (the paraprofessional may not believe or agree with the trainer but may indulge him so as not to hurt his feelings). Technical jargon should be avoided, and complex ideas may not get across even if phrased simply (in both cases "pseudo-understanding" may result).

The authors list twelve topics or areas they feel must be covered in a comprehensive training program, particularly in pre-service training (with in-service training the same content would be covered, but might be handled differently). These areas include a brief survey of infant child development, Piaget's sensorimotor stages (simplified), Erikson's concepts of trust vs mistrust, autonomy vs shame or doubt, and initiative vs guilt, as well as health, safety, nutrition, classroom ecology, tasks and games, how to fit tasks into caregiving routines, the problem of matching a task to a particular child's level of development, sharpening observation, materials (creation and presentation), and classroom responsibilities. In-service training is important in promoting quality-control and upgrading skills. It is recommended that case conferences on individual developmental difficulties (such as too little smiling, vocalizing or reaching) should be part of weekly in-service sessions.

The benefits of successful training will be the paraprofessional's increased confidence and ability to cope with her own children. She will move on in her own learning with a minimum of encouragement (such as released time for community college work). The final benefit is the realization that training is a two-way learning experience: paraprofessionals also train the professionals.

Lally, J. R. & Smith, L.
Family style education: A new concept for pre-school classrooms combining multi-age grouping with freedom of movement among classrooms. Paper presented at the meeting of the American Psychological Association, Miami, September 1970.

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This paper describes the education of 27 children aged 18 to 42 months in the Syracuse University Children's Center full-day day care program, (which primarily serves disadvantaged children). The program is an alternate to teacher centered and task centered day care programs. Social skills are viewed as important, along with cognitive skills.

Daily contacts with children of varying ages and freedom of movement among rooms, is more similar to the home experience, and has the advantage of increasing the number and kinds of socialization experiences available. A major goal of the program is to provide a richness of learning experiences from which children can choose in a setting constructed to reward self-initiated activities. Teachers are viewed as one of the available experiences.

The physical environment consists of four rooms, a hallway, a gymnasium, a playground, and a cafeteria. The 27 children are served by seven teachers. The rooms contain materials relevant to particular kinds of activities. In the Creative Expression room, teachers spend much time preparing materials, but once the children are started on an activity, they tend to work on their own. The Sense Perception room seems to require more teacher participation, for example in creating problem experiences that foster basic concept understanding. In the Small-Muscle room there are many materials (puzzles, etc.) on open shelves, available for use; teachers make different types available each day (with everything out, nothing gets put away). In the Large-Muscle room, the children learn to understand concepts by using their bodies in game and dance. In all four rooms, any individual work between teacher and child occurs by invitation.

In addition, there are two regular invitational routines - morning and afternoon snack periods of 40 the 45 minutes during which snacks are available (and announced); and a gym or playground period, also held each morning and afternoon. Each child decides when and if he will participate in these activities.

Lunch is considered an important learning time, and even the youngest children serve themselves. Nap time follows lunch, with cots in all but one room; children who cannot sleep can get up and go into the open room.

Preliminary evaluation of the program indicated that for the 17 children assessed at entry and at mid-point in the program with the Stanford-Binet intelligence tests, no differences between the scores obtained at the two times were found. The same was true for the Peabody Picture Vocabulary test scores of 13 children and the Pre-School Attainment Record scores for 15 children. Thus, the Family Style Program does not appear to have resulted in a decline in cognitive performance. The authors see the strength of the program in growth in areas not measured by traditional developmental tests - ego strength, motivation, social relations. The mixed age grouping appears to foster cooperation, and to free up teacher time as well as lead to changes in teacher roles. Finally, the most striking aspect of the program is that the children seem happier; there is less crying and more inter-child laughter and verbalization.

The paper includes a diagram of the physical environment and an example of an individualized program in auditory discrimination, work recognition and production.

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The author argues that comprehensive child care services are not out of reach of most communities if existing services are organized, and if the four major criticisms of current facilities are dealt with: 1) poor quality, 2) insufficient quantity, 3) neglect of individual needs, and 4) parental fear of loss of customs and culture. He goes on to provide a model for such a comprehensive service, the hub of which is a City Child Care Center. This facility would perform many functions. It would be an information center, distributing information to and from the various child care components in the city, and would have information concerning costs, hours, program style, age, staff training, cultural composition and emphasis, etc. It would also serve children ranging from infancy through high school, and would be used as a training base for all city operations, with both inservice and preservice training. Staff members (child care specialists) would also act as quality control teams, visiting the various facilities and providing consultation. Radiating from this hub facility would be all of the various child care services, including 24 hour family care homes, private day care and nursery schools, church and community group centers, temporary foster homes, parent and neighborhood cooperative child care centers, etc. Variety in facilities should be great, so that selection could be made according to need. Since a family's needs change frequently, as work patterns and children's ages change, variety in facilities is critical.

Levenstein, P.

Cognitive growth in preschoolers through verbal interaction with mothers. American Journal of Orthopsychiatry, 1970, 40, 426-432.

This article provides a brief description of the Mother-child Home Program, its design, and some results obtained at the end of the first year of intervention. The author argues, in part, for consideration of home-based programs by pointing out that educators should avoid promoting center-based programs solely on the basis of observation of some extremely disorganized low-income families; they should not assume that all low-income families lack the capacity to provide the elements essential to very young children's learning.

The design of the project includes an experimental group (33), and two control groups, one receiving home visits but not stimulation of verbal interaction (9) and one that was only tested (12). The second group was included as a control for the Hawthorne effect (that children would improve merely because they were studied) and considerable care was taken to avoid the Rosenthal effect (that the experimenter's expectations directly or indirectly affect the findings) in testing (four judges listened to 12 tape-recorded sessions and classified the subjects into three groups, with no better than chance accuracy).

The results demonstrated dramatic cognitive learning (since there was no difference between the average gains of 2 and 3 year olds).

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Levenstein, P.

Mothers as early cognitive trainers: Guiding low-income mothers to work with their preschoolers. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971.

This paper provides a short but comprehensive description of the Nassau County, New York Verbal Interaction Project, and includes some results from the years 1967-1970. An assumption of this project is that early cognitive enrichment must contain a conspicuous language thrust and would be most effective at ages two and three years. This assumption is based on the notion (E. Cassirer and R. Brown) that the child goes from initial labeling into easy use of language and then to conceptual development fostered by language.

The mother-child Home Program uses both volunteer and paid women as home visitors (Called Toy Demonstrators) although social workers were used in the first year. They guide low-income mothers (mostly black) toward becoming cognitive trainers of their toddlers by stimulating verbal interaction in mother-child dyads around gift materials (called Verbal Interaction Stimulus Materials or VISM) in twice weekly half-hour units.

A flexible, verbally oriented curriculum is used by the interviewer to guide the mother into using the techniques with her own child. Nine categories of verbal instruction grounded in "instrumental conceptualism" (J. S. Bruner) are adapted to the particular features of each VISM.

Toy Demonstrators were required to attend a yearly eight-seminar training workshop, and weekly conferences during the seven-month project year. Mothers and their children receive home visits for two years, with follow-up testing afterward. Very significant IQ gains (Cattell/Stanford-Binet/PPVT) were found after each year, with similar retention in the first follow-up study for experimental but not control groups (e.g., 11.7 IQ points gain after 8 months, 17.2 after 20 months).

The project director cautions that such a program does involve an invasion of privacy for the mother, who may permit it because of her strong motivation for her child to take advantage of good education. The trust placed in researchers by mothers places a burden for program refinement; likewise a mother's choice not to be "saved" should be respected.

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Levenstein, P.

Verbal interaction project: Aiding cognitive growth in disadvantaged preschoolers through the Mother-child Home Program. Final report, submitted to Children's Bureau, Office of Child Development by the Family Service Association of Nassau County, Inc., 1971.

In this report the three-year verbal interaction project is summarized and results are described. During those years the design was refined toward making an "exportable" project. In its final (i.e., 1970) version it was a home-based, two-year method (seven months in each) using non-professional women of varying income and education as volunteers or paid intervenors to stimulate mother-child verbal interaction focused on gifts of 11 toys and 12 books in twice-weekly, half-hour visits.

The final report included considerable detail of results concerning both subjects and intervenors. In summary, the program was concluded to be cognitively effective with 98 low-income preschoolers, most of whom were identified by skin color as "Negro". Significant IQ gains were made by experimental groups in every planned variation of the program but with differing amounts of potency.

1. One year with social workers as intervenors led to a mean IQ increase of 17 points which decreased (not significantly) by only 4 points over the next 20 months.

2. One year of social work intervenors plus one more year of reinforcement led to mean gains of 24.8 points.

3. One year with non-professional intervenors led to gains of 12 points.

4. Two years with non-professionals led to gains of 17 points.

5. The follow-up with 41 subjects 20 months after pretesting demonstrated continued IQ gains.

6. The VISM (toys & books) only group made 8 point (significant) gains in general IQ but the same group lost 6 points in verbal IQ.

7. No single variable was found to be firmly related to IQ gain.

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The program was demonstrated to be feasible for replication in other settings, with costs (including VISM) of about $400 per child for 46 semi-weekly half-hour visits spread over 7 months of each of two years. (This includes some volunteer help, with professionals as supervisors and non-professional high school graduates as the remaining intervenors).

Future plans include follow-up, dissemination and study of 1) affective gains, 2) variability in cognitive and affective gains, and 3) assessment of associative and conceptual (per Jensen) intelligence in follow-up.

* This study seems to have included excellent controls and careful intervention into homes. The extent to which the same excellence can be replicated in other settings remains to be seen.

Levenstein, P.
Verbal interaction project: Summary Progress Report, June 1971.

This report summarized the goals and accomplishments of the project, with continuing goals included. It provides useful information when read in conjunction with the final report or other articles describing the study.

Levenstein, P., & Levenstein, S.
Fostering learning potential in preschoolers. Social Casework, 1971, 52, 74-78.

In this article, the mother-child Home Program of the Verbal Interaction Project is described, with emphasis on the fact that the project is sponsored by the Family Service Association of Nassau County, New York.

The program is described, along with some results (e.g., the group receiving home visitors who did not stimulate verbal interaction did not demonstrate significant IQ score increases, nor did controls, while the group receiving visits and stimulation did improve). Professional social workers, used as Toy Demonstrators during the first year of the study, achieved a mean IQ score increase in the children of 17 points; nonprofessionals under supervision achieved a mean rise of 13 points.

The authors contend that such a program provides an excellent avenue for social workers and family service agencies to engage in prevention rather than their usual patch-up and amelioration tasks. Agencies engaged in such operations should 1) place primary value on the family as an institution and on respect for needs of individuals; 2) be structured with a minimum of bureaucratization; 3) have a variety of personnel available, and 4) be ready to respond with resources or referral to the requests of mothers for help in any area of their

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lives. Family agencies thus appear to be ideally prepared to undertake the enhancement of cognitive development in children of low-income families. Moreover, they frequently have volunteer pools; volunteers were used to advantage as Toy Demonstrators in the Mother-Child Home Program.

The authors also describe modifications of the program to be undertaken, including the addition of a "VISM only" group of subjects, the inclusion of families outside the housing project, and the systematic investigation of socio-emotional variables involved in and possibly affected by the program.

Loda, F., Aabel, E., & Land, M.
The provision of health services to children in group day care. Unpublished manuscript, University of North Carolina, July 1970.

This paper describes the health care program of the Frank Porter Graham Child Development Center in Chapel Hill, North Carolina. In 1970 there were 39 children enrolled in full-day care, 30 of whom had been enrolled since less than one year of age. The center is open from 7:45 a.m. to 5:15 p.m. five days a week. Two approximately equal groups of varying ages are housed in separate trailers (called cottages) but share many activities. Comprehensive health care is provided and the center is open Saturday mornings to see sick children and for scheduled well child visits.

The organization of the health care program is described in some detail. A pediatrician, three licensed practical nurses, and the day care workers are involved in the health care program. A pediatric nurse practitioner makes well child examinations at 1, 3, 9, 12, 18, and 24 months and annually thereafter; developmental testing is included. She also examines all children who are ill and makes referrals. Ill children are not segregated from well children but may segregate themselves by seeking quiet or rest.

From the time the center opened in 1966, until this report was written, there were nearly 100 child-years of observation. There were approximately 8.5 respiratory illnesses per child-year, with a higher rate in children under one (9.5 per child-year) and a slow drop to less than 7 respiratory illnesses per child-year in the five year olds. A careful comparison of seven infants receiving home care with seven matched center infants revealed almost identical rates. Over ten months the home children had 68 episodes of respiratory or systemic illness symptoms compared to 64 for the center children. Data on febrile respiratory illness, hospitalization and nonrespiratory illness are reported.

Five points are made concerning necessary versus unnecessary aspects of the health program which have implications for replication. 1) Space and staffing requirements need further definition. 2) The relationship between socio-economic background and illness rates needs investigation. 3) The practice of mixing children of different ages may affect illness rates; many respiratory pathogens have age specific attack rates, and their spread may be encouraged by same-age grouping. 4) The effect of intensive medical surveillance on illness rates requires better definition; the level of supervision in this program would not be generally

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feasible. 5) The stability of a group of children may be important; the staff and child populations in this study were relatively stable.

The value of isolation or of not taking sick children in a day care center is questioned, particularly in view of the importance to working mothers of having consistent care arrangements.

A suggested framework for health care in day care centers is outlined, and duties and time estimates for workers in a center for 60 children are described. Suggested personnel include a physician (on a consultant basis), a pediatric nurse practitioner, and a licensed practical nurse. Personnel costs are estimated to be $118 per child per year, not including medicine, equipment, laboratory fees or health insurance. Training is discussed.

The experiences of the authors suggest a need for reexamination of policies on care of infants and isolation procedures. In addition, further investigation is needed of the etiology of infectious disease and the response of young children to such infections, of the delivery of health care in a day care setting, particularly regarding the possibility of expanding the roles of the pediatric nurse practitioner and licensed practical nurse. There is also need for continued examination of the total day care environment so that more efficient, low cost, safe group child care can be developed.

McCandless, B.R.

Demonstration: Male workers in day care. Progress report available from the Family Research and Development Foundation, Inc., Atlanta, 1972.

In this project, four white advantaged and four black disadvantaged male high school students work as caregivers for black and white children aged 4 months to about 6 years who attended two early learning and day care centers. The clientele of one center is predominantly white and of middle to upper-middle income, enrolled on a fee basis. The clientele of the second center is economically disadvantaged and black; no fees are charged.

The male caregivers received both preservice and inservice training; they work half days.

For evaluation, three areas are of particular interest. The demands made on the male and female caregivers by male and female preschool children of disadvantaged and advantaged background and vice-versa will be assessed. Sex typing will be studied in order to find out if facilitation of appropriate sex typing occurs for both boys and girls experiencing male caregivers. Competence in terms of independence and task orientation will be assessed.

Observations to date have tentatively indicated that the oldest caregivers are by far the best and the youngest the most difficult trainees (age range is 16 to 19 years).

* The preliminary data from this study will be available about July, 1972. The project is described here because it is addressing the issue of male caregivers in day care.

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Meier, J. H., Segner, I. L., & Grueter, B. B.
An education system for high-risk infants: A preventive approach to developmental and learning difficulties. Ir J. Hellmuth (Ed.), Disadvantaged child, Vol. 3. Compensatory education: A national debate. New York: Brunner/Mazel, 1970, 405-444.

The authors begin by providing a comprehensive discussion of high risk conditions (both environmental and neurological) for infants. Problems in the identification of high-risk infants, and the resultant difficulties in implementation of early intervention are considered. Particular groups of susceptible infants (those small for gestational age, premature, twins, etc.) are discussed. The rationale for using infant education curricula is seen in terms of the importance of both early experience and possible critical periods in development.

It is pointed out that two approaches to infant education have generally been used, the first providing an enriched environment in a day care setting and the second involving training of disadvantaged mothers through home stimulation methods. Some infant education programs of each type are reviewed, and the authors note that no systematic evaluation of the various approaches to infant stimulation has been undertaken.

Several assumptions underlie the notion that systematic education of infants facilitates their optimal development. First, the developmental process is thought to result from simultaneous mutual interaction between biological mechanisms and environmental factors; that is, the organism does not develop without use. Second, it is assumed that the infant actively seeks the experiences required for growth and development. Third, the infant develops cognitively only when he performs certain learning acts within certain kinds of surroundings. Fourth, the first three years of life constitute a critical period for intervention because of the unparalleled growth of intelligence during this period. Fifth, the disproportionate number of developmental disabilities in high-risk children are thought to be due to either inadequate or inappropriate early educational experience. Finally, it is assumed that compensatory measures can be implemented with these high-risk infants to prevent later intellectual deficits.

An infant education curriculum is described, and its framework is defined in terms of the major parts of its structure. The authors argue that 1) a curriculum should have a solid conceptual rationale (theirs is based on Piaget), 2) planning should be based on a developmental inventory (Bayley, Uzgiris & Hunt, Yale schedules and the Denver Developmental Screening Test are mentioned), 3) systematic training of teachers (they recommend a staff to do both training and curriculum and inventory design) is a necessity, 4) a detailed curriculum of sequential and hierarchical experiences should be used (based on all sensory modalities, and perhaps including mechanical devices), 5) a system of remediation must be included in the curriculum, and 6) techniques for evaluation must be planned and used. Extensive references for their rationale and examples for their proposed curriculum model are included.

Moyles, E. W., & Wolins, M.
Group care and intellectual development. Developmental Psychology, 1971, 4, 370-380.

The cognitive development of children in group care programs was compared with that of children reared at home. The project included ten samples of children in Austria, Israel, Poland,

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and Yugoslavia. The Raven Progressive Matrices (a relatively culture-free test) was used to assess cognitive development. The subjects ranged in age from 11 to 19 years. Most of those in group care had not entered care in infancy, but much later.

The results showed that the group-reared children did not show any of the developmental deficiencies usually attributed to "institutional" rearing. The Austrian group-reared sample consisted of 65 children who had entered at from 2 to 12 years of age (mean entry age was 8½ years). The correlation of entry age with Raven percentile position was near zero. Length of stay for this group (as well as for some of the others) was also unrelated to performance.

* This study is included because it addresses the question of the effects of group care on cognitive development. However, these results cannot be generalized to group care programs for infants and young children, since none of the subjects had entered care in infancy and few had done so prior to being of school age.

Murphy, L.B.
Multiple factors in learning in the day care center. Childhood Education, 1969, 45, 311-320.

The components of a quality day care program are discussed. Day care programs have responsibility for the total development of the child, for everything he should get in a good home. There are important connections among physical, emotional, and mental aspects of development. A program must first help the child to trust the staff, and then must have a flexible program.

The author contends that day care centers that turn out the most well-rounded children are those with comprehensive programs and on eclectic philosophy, drawing on several points of view rather than only one. Concept learning will develop only in a warm, open adult-child relationship. Children should be talked with, not at; they should be asked questions and encouraged to ask questions themselves. Exploration with varied materials is important; pre-school technology consists of latches, lids, zippers, pots and pans, etc. By using materials the child becomes competent in organizing objects and increases his understanding of relationships. Play involves the development and skillful integration of many awarenessess and the constant development of new insights. Basic education in day care consists of learning about the environment. It also consists of learning to cope with newness, and learning to welcome new experiences. Learning to be responsible contributes to the child's competence and sense of being able to manage the routines of life. While a child may forget what is externally imposed, he is not apt to lose the kind of learning he achieves for himself.

The author discusses some pros and cons of the Montessori system. Some good aspects are that the child's work is respected, he can choose from various activities, he can go from one level to another, and he is expected to take some responsibilities. Some shortcomings are that the traditional Montessori system does not provide support for originality, creativity, group planning, organization, development of cooperation, ability to resolve conflicts, communication of teachers with children and children with each other.

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It is the author's observation that spontaneous learning seldom occurs without special help for children from the most disorganized, barren homes. Deprived children are often distrustful of the entire day care setting and require extra mothering to build trust.

More studies of the social development of day care center children are needed. Rules and limits are part of learning, particularly in learning to cope with aggressive feelings.

Finally, the individual needs of each child must receive attention and planning.

Murphy, L.B.
Unanswered questions about deprived children. Talk delivered to the clinical staff of Hillcrest Children's Center, 1967.

Some questions of importance to those involved in programs for deprived children are raised. First, intervention programs using a wide variety of techniques for cognitive stimulation also have as a common element personal attention, interaction with adults, and caring and responsiveness to the child by the staff members. Gains may be as much due to variables of the latter type as to the particular stimulation provided.

Plans for adequate infant care should include: 1) a sufficient range of developmentally appropriate sensory stimulation, 2) opportunities for motor exploration of the environment appropriate to the child's developmental level, and 3) exposure to the opportunity to interact with other children and with adult caregivers.

The question of what constitutes an optimal amount of stress is raised. The ability to transcend difficulties develops through experiences involving stress; too much stress is bad, but so also is too little. The problem is to find a balance among stress, vulnerability, resilience and support.

The effects of intervention on individual children are seldom reported; a mean increase in IQ scores for a group does not mean that all children were affected positively by the program. The author notes that in some studies a mean IQ score increase of 10 points was obtained, but a few individuals in the group had decreases of 20 points. It is important to determine the reasons for such decreases.

Naylor, A. K.
A child development research project at Yale University Child Study Center. Unpublished report, Yale University, 1969.

This paper provides a description of the Yale Child Study Center intervention project directed by S. Provence. This is a service-centered longitudinal study of child development in infancy and early childhood, directed at the characteristics and needs of children whose

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development is "at risk" because of environmental conditions. Its aim is to provide data which will lead to effective methods of preventing or alleviating the intellectual and personality damage so often associated with poverty. The major objectives of the longitudinal study are: 1) to provide direct services to parents, including a day care and education program, 2) to design a model day care and intervention program, 3) to document the dimensions and vicissitudes of the services (which will be provided in accordance with sound clinical practices), and 4) to increase empirical knowledge about the development of disadvantaged children.

The research subjects are first born normal infants (identified before delivery), selected on the basis of income level and distance from the center. Mothers who are actively psychotic, severely retarded, and with a medical history indicative of a defective infant are ineligible. The investigators include participant observers ("family team") who have direct contact with children and parents and usually render a service, and nonparticipant observers who observe the child and parents through the one-way screen and at a distance. The latter observe physical and developmental examinations, mother-child interaction, and parental behavior toward staff, other parents, other children, etc. A control group of comparable children will be assessed once a year on developmental and psychological tests, health, and developmental and health history.

A pilot project of similar design and objectives as the longitudinal research was begun in October, 1967 in a remodeled, old former residence in a largely Negro neighborhood. The pilot project was undertaken to recruit and train personnel and try out procedures, and to make use of the day care facilities while research subjects were being cared for at home (the latter entered the project at birth but were not slated to begin group day care until two years of age). Children were chosen for the pilot group because their future development was considered to be at risk. Ongoing contact with parents was also a factor in admission.

The pilot project began with 23 children from 19 families. Eight children were aged 15 months to 2 years, four were 2 to 3 years, seven were 3 to 4, and four were between 4 and 5. There were nine boys and fourteen girls, and nine white and fourteen Negro children. Ten had working mothers; ten children were supported in full or part by public welfare. Five children attended the center four to five hours a day, the remainder eight to nine hours.

* This project has a more clinically based orientation than most intervention programs. Hypotheses about certain ego functions (defenses, ways of mastering the environment, abilities to learn and apply knowledge about people and ideas) are being tested.

New York State Social Development Planning Commission

Status report on New York State's Appalachian Child Development Project, Albany, New York: Author, 1971.

This report describes a planning program to establish comprehensive child development services in New York State's Southern Tier area. The primary objectives of the planning effort were to identify and develop a comprehensive array of service programs to meet effectively the

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needs of children in rural areas and to determine an effective delivery system for the coordination of services. The report includes discussion of the basic planning assumptions (in part, that the individual child should be the focus), a description of the comprehensive child care model developed (to guide in the delivery of programs which would promote optimum development of any child, identify dysfunction, and correct disturbance), and a description of the proposed coordinating mechanism (which includes the establishment of Child Development Cooperatives, the locally based mechanisms for ensuring delivery of services).

New York State Social Development Planning Commission

Comprehensive interdisciplinary developmental service with a child-based information system component. Proposal to the Appalachian Regional Commission, Albany, New York, 1971.

This project was proposed to create identification and referral teams in the three counties of the pilot demonstration area for New York State's Appalachian Child Development Project.

The purpose is not to provide child services directly, but to assist in the organization of the existing child care elements into a comprehensive delivery system which would promote optimal development. Interdisciplinary teams composed of professionals (one each from education, social work, mental hygiene and health), nonprofessional child development aides, and volunteers would work to bring people and services together through case finding, screening, referral, education, resource development and services. In addition, an information system would be developed to update service inventory, to provide a data registry system and a mechanism to assist in evaluation, and to gather data for further planning. Since this is a rural area, such an information system is badly needed.

Ohio Child Development Administration

Description of the Carroll County program, Tuscarawas Valley Regional Advisory Committee project. Funded by the Appalachian Regional Commission, 1971.

The Carroll County program is a sub-contract of a larger contract which states that the comprehensive child development program shall make services accessible through a single entry. Service will include family planning information and supplies, health care prenatally for the mother and postnatally for the preschool child, systematic cognitive stimulation, a satisfactory emotional climate, day care when needed, protection and rehabilitation. The Carroll County program itself includes the development of a Family Life Education curriculum for high school and adult education students. A communication disorder screening program for infants and preschool children will also be provided. The curriculum will be tailored to meet the needs of rural youth in preparation for marriage, parenthood, and life in a rural area.

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Painter, G.

The effect of a structured tutorial program on the cognitive and language development of culturally disadvantaged infants. Merrill-Palmer Quarterly, 1969, 15, 279-294.

This study with culturally disadvantaged infants had two major purposes: 1) to develop a structured tutorial program which would accelerate the development of the infants and prevent anticipated cognitive and language deficits, and 2) to assess the growth of the infants after one year of individual tutoring.

The subjects were divided into an experimental (E) and a control (C) group of ten infants each. Both groups included male and female, Negro and Caucasian infants aged 8 to 24 months, and all infants were the younger siblings of four year olds attending an experimental nursery school for culturally disadvantaged children. Infants in the E group were tutored in their homes for one hour a day, five days a week, over a one year period. All tutors were female, with bachelor's degrees (one also had a master's); they received preservice and inservice training. Little was done to involve the mothers in the tutoring process, since the central purpose of the study was curriculum development.

The training program emphasized language and conceptual development since pretesting indicated deficiencies in these areas. In addition to general emphasis on language, a structured program was presented which consisted of: 1) beginning language, 2) elaborative language, 3) the breaking down of "giant word units", and 4) the encouragement of internal dialogue. The concepts of 1) body image, 2) space, 3) number, 4) time, and 5) categorical classification were also emphasized.

After one year of tutoring for the E subjects, several posttests were given to both groups. The scores of the E group were higher than those of the C group on 25 of the 26 variables tested; the difference was significant for eight variables (small sample sizes required large differences for statistical significance). On the Stanford-Binet, the mean IQ scores of the two groups were comparable on the pretest (E = 98.8, C = 98.4) but the E subjects scored significantly higher on the posttest (108.1 versus 98.8, $p < .05$).

The Illinois Test of Psycholinguistic Abilities, language subtests of the Merrill-Palmer Scale of Mental Tests, and the Visual Closure subtest of the Minnesota Preschool Scale were given at the posttest to assess language development. The mean score of the E group exceeded that of the C group on 14 of the 15 subtests, but the difference was statistically significant for only two. Conceptual development was measured with six subtests of the Merrill-Palmer Scale of Mental Tests and two tests divised by the author; the E group scored consistently higher and the difference was significant in five of the eight cases.

These results strongly suggest that the program produced a rate of acceleration within the experimental group that was substantially greater than the progress of the control group. The question of the most strategic age for educational intervention has not been answered, but follow-up on these subjects when they are four years of age (by comparing their development with that of their older siblings who received intervention at four but not in infancy) should provide important information.

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The author suggests that involvement of mothers in such a program might help to sustain gains. She also notes hat the logistics of home tutoring point to the desirability of having the infants attend a central instructional facility.

Prescott, E., & Jones, E.

Patterns of teacher behavior in preschool programs. Paper presented at the meeting of the Society for Research in Child Development, Santa Monica, California, March 1969.

The nature of the teacher-child relationship found in day care centers (sample of 50 from 396 in Los Angeles county) was studied, primarily through observation. The children's ages were not specified, but most were probably in the 3 to 5 year range.

Four patterns of teacher behavior were identified through factor analysis: (1) encouragement restriction (2) conformity to routine (3) group teaching (4) independence training. The most stable features of teacher behavior were activity level, emphasis on group or individual work with children, and frequent use of encouragement or restriction.

Teacher behavior was reported to be related to the quality of physical space, size of the center, staff characteristics and children's responses, but the data were not presented.

Prince George's County Public Schools

An integrated home and school early education project. Unpublished manuscript, 1971.

This program is designed to explore the possibilities and problems involved when a public school system attempts to extend its educational program downward to infancy and early childhood by using home visitors to teach mothers how to foster intellectual development.

The study was designed for the parents of all children born in 1969 and living in a particular section of a model neighborhood area (the section serviced by two elementary schools). The three year study was planned so as to follow the oldest children up to 53 months of age, with a follow-up study planned to continue up to first grade. Ten paraprofessional tutors are used to make home visits, initially one hour per day and four days per week but decreasing, as the mother develops her stimulation abilities, to one visit every other week. As the tutors' time becomes more available, they will begin to work with older children in the project families an in the neighborhood. Parent involvement in the form of monthly meetings and efforts to develop a nursery school in the neighborhood is encouraged. Four control groups are included for test comparison.

Progress reports for February, May and August, 1971 indicated problems with staff turnover (among tutors and at higher project levels), and space. Progress was generally good, as was acceptance by mothers and the community in general.

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Provence, S.
Guide for the care of infants in groups. New York: Child Welfare League of America, Inc., 1967

The author expresses strongly the opinion that the care of infants in groups should be avoided if at all possible. Recognizing, however, that institutional placement of some infants is a fact of life, she has written this handbook to serve as a guide to help those involved in the care of infants in institutions to provide care of high quality. The first six chapters focus on infant development and include discussions of the development of emotions, motor abilities, the sense of self, play, and speech and thought. The last nine chapters focus on the care of infants and include discussions of feeding, bedtime and sleep, bathing and diapering, bowel and bladder control, developmental landmarks, danger signals, recommendations for planning, and what constitutes a favorable environment. The book is based on a psychoanalytics view of development, and emphasizes social and emotional rather than cognitive development.

* While this book was written for those involved in institutional care, its content applies quite directly to infant day care settings. However, the author expresses strong feelings against group infant care, so she presumably would not advocate extrapolation from her recommendations to the day care setting.

Robinson, H. B., & Robinson, N. M.
Longitudinal development of very young children in a comprehensive day care program: The first two years. Child Development, 1971, 42, 1673-1683.

This article describes results from assessments of the development of eleven children admitted in 1966 and the twenty enrolled in 1967 and 1968 in the Frank Porter Graham Child Development Center of the University of North Carolina at Chapel Hill. The center was established as a pilot facility for a larger project which would include a longitudinal intervention study of children from birth to 13 years.

Children to be enrolled in the center were selected before birth and entered day care when their mothers returned to work, four weeks to six months after birth. Children attended the center when they were sick. The educational program was carefully structured; curricula were developed in language, sensorimotor skills, perception and reading, scientific and numerical concepts, music, art, and French. Two cottages of up to 16 children of all ages were used for eating, sleeping, and free play. For about three hours per day, children were grouped developmentally for instruction and play ($2\frac{1}{2}$ to $4\frac{1}{4}$ year olds went to an educational unit).

Data are reported for 31 subjects from twelve Caucasian and twelve Negro families. The children ranged in age from a few weeks to $4\frac{1}{2}$ years at the time of testing. Age at admittance varied from one month to two years. The median family income for the 15 Caucasian children was $10,976 and for the 16 Negro children it was $3,519; these differences reflect the disparities in the community. One control group of 11 children was followed from birth but

did not attend the center; the other control group was tested only once and compared with center children who at that time were 2½ to 4½.

Scores for center and control subjects admitted as infants were significantly different; center children scored higher on both the Bayley mental and motor scales, but a significant trend over time was found only for the mental scales. There was an initial rise for both groups and then a sharp drop for the control group at the 18 month testing.

Children admitted to the center at age two and tested at six-month intervals achieved generally high verbal scores. They did well on the Stanford-Binet (S-B), the verbal scale of the Wechsler Primary and Preschool Inventory (WPPSI), the Caldwell preschool inventory, (all primarily verbal tests) as well as on the nonverbal Arthur Adaption of the Leiter scale. The exception to the high verbal scores was the PPVT. Nonverbal scores were generally lower than verbal ones (e.g. the WPPSI performance IQ was about 1/2 standard deviation below the mean verbal IQ). Language assessments revealed revealed advanced verbal behavior.

When test results for the 16 older center children and their matched controls were compared, the differences for Negro children were expecially striking (on the order of two standard deviations). The mean S-B for the seven Negro center subjects was 119.7; for the Negro controls, 86.1. Comparable scores on the PPVT were 107.4 and 77.6. There was no overlap of scores between the groups on either test. The nine Caucasian center children had a mean S-B IQ score of 129.7; their controls scored 116.9. Their PPVT scores were not different.

The findings are interpreted as suggesting that enriched group care of the young infant may enhance cognitive development, especially when verbal abilities are emerging. The period around 18 months of age may be crucial. The results also indicate that high quality group care combined with educational efforts during ages two to four years may have its major impact upon disadvantaged children. The day care, educational, and health program effects could not be separated in the pilot study, but the "package" clearly made a difference. Finally, the major inpact of the program was in verbal rather than motoric areas.

The authors comment that the lack of well-standardized instruments to assess social-emotional functioning is a major handicap to such studies. They mention several questions raised by the study; major longitudinal research will by required to answer them.

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Stevenson, M. B., & Fitzgerald, H.D.
Standards for infant day care in the United States and Canada. Research report, Michigan State University, Early Education Research Center, April 1971.

A survey of state and provincial licensing requirements for infant day care was undertaken a) to determine which states and provinces have anticipated the rising demand for infant day care by developing standards for such care, and b) to assess the adequacy of the standards for meeting all aspects of infant development. Twenty-six states and five provinces were found to license infant day care.

An adequate number of caretakers and adequate space are two of the most important factors in the provision of quality care. Required caretaker-infant ratios ranged from 1 : 3 to 1 : 10 (the high figure was cited by Arizona, New Mexico, Oregon and Alberta for infants up to 18 months of age), with a mean slightly above 1 : 5. Ratios were generally higher for toddlers (19 to 30 months). (The standards of the American Academy of Pediatrics AAP recommend a ratio of 1 : 4 for both infants and toddlers.) Departments surveyed required from 20 to 55 square feet of floor space for each infant, with a mean of about 35 square feet.

Health standards related to staff health, infant admittance examinations, maintenance of infant health, maintenance of a healthy environment, feeding, and diapering, are reported. Listed in order of frequency, procedures to limit the spread of disease were: isolation of sick infants (which is deemed unnecessary in the AAP standards), daily health inspection of infants, reporting the presence of communicable disease to all parents, and a doctor's certification after a lengthy and/or contagious illness. The AAP standards recommend frequent handwashing by caretakers. Infant's rooms are required to be kept at specific temperatures by 15 states. Nearly all standards emphasized that feeding schedules should follow those established by parents. Most standards either neglected to mention diapering or merely indicated that it should be done as needed; 11 states specifically mentioned extra handwashing in connection with diapering.

Safety standards for protection of infants and provisions for handling emergencies are reported.

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Standards for fostering normal development constitute the third general area of standards discussed in this report. Quality staffing is important in the provision of care; when staff criteria are included in standards they generally reflect concern to have staff of "good character". Few departments required that directors of day care centers have training in infant development or nursing. Nine states required caretakers to be assigned to individual infants. Thirteen states required separation of infants and toddlers. Only eight departments required reports from parents on the infant's habits, and only five required that developmental records be kept. Virginia, Washington, Colorado, and Ontario required that infants be held during feeding, and Wisconsin required holding during bottle feeding. No department recommended or required that infants be spoken to or interacted with socially during bathing or diapering. Fourteen departments made no mention of specific parent contact, and no department specifically alluded to provisions for mothers who are breast feeding their infants to continue in the center. Twenty departments had standards for discipline, mentioning especially the need to avoid corporal punishment and verbal abuse. A very critical aspect of quality care for infants is a curriculum, but standards were found to require very little in the way of specific activities. Alabama was an exception; they required 1/2 hour of individualized caretaker-infant interaction each morning and afternoon. The most frequently mentioned activity was going out of doors (16 departments). Systematic consideration of developmental needs and curricula designed to meet those needs are clearly required.

The survey results indicated that the more stringent standards adequately provided for the health and safety of infants. Since the literature on the effects of institutionalization makes it clear that provision for the physical well-being of young children is insufficient to ensure normal growth and development, departments should require specific periods of individual attention and must set firm guidelines for such periods. In other words, infant curricula must be developed. The authors cite several sources for materials and ideas on curriculum development. They also point out that curricula should be guidelines to help staff members focus on individual infants and individual levels of development; a single inflexible curriculum is not the answer. Applicants for day care licenses should be required to show that thoughtful and effective curricula are available for infants in the center, not just that minimum health and safety standards have been met.

U. S. Department of Health, Education, and Welfare, Office of Child Development. Day Care. Washington, D. C.: Author, 1971.

This is a series of seven booklets concerning different aspects of day care. They include a statement of principles, and handbooks on day care for infants, preschool age children, and school age children, staff training, health services, and administration.

The second booklet, Serving Infants by D.S. Huntington, S. Provence, and R.K. Parker, includes chapters on general principles, center organization, daily planning, and

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activities for infants. Three appendices provide information concerning sources of information on day care and child development, suggested equipment and supplies for an infant/toddler center, and commercially available toys and books.

* While the infant care booklet is primarily concerned with group care of infants in day care centers, much of the material is applicable to the care of infants in any setting.

Wargo, M. J., Campeau, P. L., & Tallmadge, G. K.
Further examination of exemplary programs for educating disadvantaged children. Portion of final report submitted by the American Institutes for Research in the Behavioral Sciences, Palo Alto, California, to the U.S. Department of Health, Education, and Welfare, Office of Education, 1971.

This report provides a good overview of the design and some results of the Mother-Child Home Program of the Verbal Interaction Project, Nassau County, New York. This program was designed to foster cognitive development of disadvantaged two and three year olds by stimulating verbal interaction between the children and their mothers through home visits. Interaction was highly structured, involving four essential components: mother-child dyads, trained Toy Demonstrators (home visitors), Verbal Interaction Stimulus Materials (VISM), and supervised intervention techniques. More detail about the program is provided by Levenstein (in these abstracts).

Costs of replication of the program are estimated. A model annual budget of $29,360 for 80 children and a combination of paid (two) and volunteer (twenty) Toy Demonstrators is outlined with a per-child annual cost (35 week program) of $367.

Weikart, D. P.
A comparative study of three preschool curricula. Paper presented at the meeting of the Society for Research in Child Development, Santa Monica, March 1969.

Based on the hope of increasing the potential of compensatory education, an attempt was made to identify some of the key elements of successful preschool programs by comparing three types of curriculum: unit-based (traditional), cognitively-oriented, and language-training (specific skill). The project and preliminary results, which basically indicated that all three produced large gains but with few differences among the three, are described in more detail by Weikart in "Early childhood special education for intellectually subnormal and/or culturally different children". In the present paper the author addresses more specifically the question of why the change scores (gains) were so large. First, all three programs had a commitment to a specific (albeit different) curriculum model. Second, the specialized

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staff model, the same for all three programs, included planning, team teaching, commitment by teachers, supervision, and respect for individuals in the project. Third, factors associated with program operation were involvement with the mother (all three programs included home teaching), focus on the child, focus on education, and an emphasis on language. Possible reasons for the finding of no differences in results for the three programs include the fact that the staff model and program operation were constant, the curricula were equivalent in the sense of being based on a wide range of experiences, and staff expectations for the children were uniformly high. (The Rosenthal effect and the impact of motivational changes may have contributed somewhat to, but cannot entirely account for, the outcome).

A shift in focus from an emphasis on type of curriculum to more careful attention to staff model and program operation is recommended for the improvement of preschool educational programs.

Weikart, D. P.
Ypsilanti-Carnegie Infant Education Project. Progress Report, September 1969.

The Infant Education Project began in January, 1968, based on the assumptions 1) that preventive programming must start earlier than preschool since the essential framework for intellectual growth is completed by age three and 2) preventive intervention has unusual potential for success when provided as a home teaching program for both the mother and the infant.

Subjects in the experimental group ($n = 33$) receive home visits for one hour per week from public school teachers who focus on motoric, language, and cognitive development. Subjects in a contrast group ($n = 33$) receive home visits from volunteers who use intuitive wisdom rather than any special system. One control group ($n = 33$) is evaluated but receives no treatment, and a second control group consists of dropouts who are only pretested and posttested. Children are phased into the project at three, seven or eleven months.

Outcomes are expected in 1) mother's language style, 2) mother's teaching style, 3) mother's (child) management style, and 4) child's intellectual growth and development. The key element of concern in the project is that the mother stimulate and support the infant's growth.

This progress report includes qualitative (case history) and quantitative data (demonstrating gains) from the pilot study, an extensive description of the curriculum and philosophy for home teaching, and a list of instruments to be used in the research, with the rationale for their use.

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Weikart, D.P.
Early childhood special education for intellectually subnormal and/or culturally different children. Paper presented for the National Leadership Institute in Early Childhood Development, Washington, October 1971.

While mental subnormality as a diagnostic category is still used in academic institutions and special education classes, it has been roundly criticized in part because as a result large numbers of minority group members have been diagnosed as retarded and placed in special education classes. The author argues that instead, an effort should be made to identify high risk children and to enroll them in preschool; this suggestion is based upon early results from the Ypsilanti Perry Preschool Project (September 1962 to June 1967) and the Ypsilanti Preschool Curriculum Demonstration Project (begun in September, 1967).

Four basic models have been used to account for the discrepancies in educational attainment between minority groups and the dominant culture. The Deficit Model, on which such programs as Head Start have been based, sees the disadvantaged child as coming from an environment that limits the development of adequate mental and language abilities. The School-As-Failure Model, reflected in the current popularity in the U.S. of the British Infant School or open classroom model, suggests that the problem lies with the schools and teachers, not the child. Performance contracting reflects this trend. The Cultural Difference model contends that in a multicultural environment, education should build upon the strengths of each group rather than attempt to bring the groups into conformity with an arbitrary performance standard. The Social Structure model concludes that the general structure of the society is responsible for how an individual develops, and that radical environmental change may be required to produce improvement.

The focus of The Ypsilanti Perry Preschool Project addressed the long term impact of a two year preschool education program upon the later school performance of the black, economically disadvantaged children who entered the program at age three. Daily cognitively oriented preschool classes were accompanied by weekly afternoon home-teaching visits. The curriculum was based largely on Piagetian theory and focused on cognitive rather than social development. The experimental and control children were assessed periodically with a variety of intelligence and achievement tests. The children who participated in preschool obtained significantly higher Stanford-Binet IQ scores than the control children, but this difference disappeared by the third grade. The experimental children obtained significantly higher elementary school achievement scores in both first and third grades. The experimental children received better teacher ratings in elementary school on academic, emotional, and social development scales, and this difference continued through the third grade. Finally, when the children were enrolled in grades three through seven, 83% of the experimental subjects were in regular classes at the expected grade level, 15% were in special education classes and 2% were over age in their grade (had been retained at some point). The comparable figures for the controls were 61%, 24% and 15%. The author notes that, among other advantages of such improved performance, the state saves considerable money.

The Ypsilanti Preschool Curriculum Project was addressed to the question of the relative effectiveness of various preschool curricula. A discussion of the characteristics and merits of the Programmed (teacher initiates - child responds, e.g. Bereiter-Engelmann's DISTAR), Open (teacher initiates - child initiates, e.g. Bank Street College, traditional nursery schools, and Montessori programs), and Custodial (teacher responds - child responds)

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models is included in the appendix. Three curriculum models were compared: the cognitively oriented curriculum (an Open model) of the Ypsilanti Perry Preschool Project, the language training curriculum (a Programmed model) developed by Bereiter and Engelmann, and a unit-based curriculum (a Child-Centered model) emphasizing traditional nursery school methods. Surprisingly, each program did unusually well on all criteria including the Stanford-Binet (gains of 27.5, 28.0, and 30.2 points in the first year). Moreover, there were no significant differences on almost all measures among the three curriculum programs at the end of the first and second years. The author concludes that the operational conditions of an experimental project are far more potent in influencing outcome than the particular curriculum used. Two points are made. First, for disadvantaged (and other) children, broad curricula are equivalent; children appear to be powerful enough consumers in the learning sense to avail themselves of what is offered. Second, the curriculum is for the teacher, not the child; it helps to focus the teacher's energy, to provide a rational integrated base for making decisions, and to provide criteria for judging effectiveness. For the operation of effective preschools, planning and supervision are critical. Preliminary data from the curriculum project indicated that all three groups were performing better in elementary school than the experimental children from the earlier project, with some slight indication that the language training children may not have sustained the pace set by the cognitive or unit-based program children. Clearly, the latter two programs did not sacrifice improved skill learning. The questions of precisely what was learned, and how less tangible things such as creativity are developed under different program models, remain open.

Weikart, D. & Lambie, D.
Ypsilanti-Carnegie Infant Education Project, prepublication draft, 1970.

The authors describe their home intervention program for infants and provide some preliminary indication of its success. This project is unusual in that it uses public school teachers as home visitors (one hour per week). The visitor's role is to facilitate the mother's teaching of the child, with the first objective being to aid the child's language, cognitive and motor development and the second being to aid and support the mother in her role as a teacher.

Most mothers fell into one of four categories. A few had a good understanding of their children's needs and a relationship that encouraged intellectual growth; they were given support. Most wanted to do what was best for their infants, but didn't know how; they received specific assistance. Some were not involved with their children, viewing them as slow or different, and some seemed to provide detrimental assistance to their children with everything seeming to go wrong. These latter two groups required considerable aid in developing effective childrearing practices. Home teaching centered around language, cognitive and motor development, with specific language referents (naming and labeling) used to accompany cognitive activities.

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Following intervention, the mental subtest performance of the infants was significantly above expectation for their chronological age ($p < .05$) although they had been below average (but not significantly so) before entering. The motor development results were less clear; the infants were performing in line with the expectation for their chronological age, having been below (but not significantly so) at the pretest.

The High/Scope Educational Research Foundation (in Ypsilanti) began a two-year project in May, 1971, to document and disseminate information about the infant education process evolved during this project.

Wright, C., Lally, J. R., & Dibble, M.
Prenatal-postnatal intervention: A description and discussion of preliminary findings of a home visit program supplying cognitive, nutritional and health information to disadvantaged homes. Paper presented at the meeting of the American Psychological Association, Miami, September 1970.

The home visit program begun by the Syracuse University Children's Center in September, 1969 is described in some detail, and preliminary results are reported.

Ten paraprofessional women were hired to work as Child Development Trainers (CDTs). An eight-week session provided training in nutrition, health, interviewing techniques, and early cognitive input to infants, and included practice and role-playing in addition to lectures and talks. The CDTs began with one or two cases each, with the load gradually increased to a maximum of twenty families. The assumption on which the program is based is that each family wants everything possible for the child, and they are willing to provide it if they know what needs to be done.

The families have incomes of less than $5000 per year and a child (the subject) who is either first or second born. Some children enter the program at the age of six months and for others, the program begins prenatally. In all cases, the same CDT visits the home once a week. For those who begin the program during the last three months of pregnancy, nutritional needs during pregnancy and lactation are emphasized during the first five visits. The mother is taught how to select an adequate diet from the Four Food Groups, and dietary intake records for a 24-hour period each week are evaluated by the nutritionist. After the birth of the infant, the CDT supplies the mother with information about the emotional, cognitive, medical, and maternal needs of the child, and begins the cognitive training of the child with the mother. The child's progress is discussed at weekly case conferences at the Center. At six months of age, the child begins to attend the Center program on a half-day basis, and the home visits are continued. (At this point, additional subjects enter the program). The CDT now also acts as a liaison between the school and the home. Weekly home visit reports are written by the CDT to provide an assessment of the visit.

At the time of data analysis, of 65 mothers and their infants receiving weekly visits, 45 had entered the program at six months and 20 had begun visits prenatally. The home visit reports indicated that almost all mothers greeted the CDT warmly and were interested in the visit. The majority would do the exercises when asked to do so by the CDT. Most of the visits were conducted with only the mother and baby, but in some cases several adults were present, with the maternal grandmother usually included. Other children were sometimes also present. Books or educational toys were present in 19 homes on the first visits, 10 mothers obtained books later, and 11 obtained educational toys later. Case-work interviews revealed wide variations in mothers' childrearing concepts and interest in the program. The group of mothers who were initially uninterested in the program or the CDTs included many extremely young mothers (school age) who seemed to look upon the program as another way to relieve their own mothers of caretaking pressures. "The mere mention of taking an hour a week so they could learn to be better mothers was repulsive to them." (p. 7).

A variety of living patterns existed. Many of the mothers were aged 13 to 18 years; the majority of these young mothers lived in extended family situations. It has become increasingly evident to the program staff that a great deal of work and teaching needs to be done with the grandmothers as well as the mothers. CDTs must find ways to work with the child which do not alienate the grandmothers. In cases where the mother is resistant to suggestions, consultation with the grandmother may be helpful, but care must be taken to avoid the impression of collusion between CDT and grandmother.

Some results from an analysis of 300 nutritional questionnaires acquired from mothers of 73 infants are presented. The majority of the babies were bottle-fed; family food or junior foods were not generally given until after the fifth month, when the transition to regular family food was made. Few mothers said they followed the advice of any medical professional in feeding the child after the second month, and at least half said they decided themselves what to feed the baby. The spoon was introduced during the first three months, and the cup during the last half of the first year. Solid foods were introduced very early; by six months 90% of the babies were getting cereal, fruit, vegetables and meats and more than 50% were fed bread, crackers, cookies, eggs, puddings, cakes, pies, and candy.

The authors discuss those aspects of the program requiring modification. The home visit report must be revised so as to be more sensitive to the actions of the families and infants so that what happens during the CDT visits is more clear. The grandmothers of the children must be involved in the program, perhaps through simultaneous visits to mother and grandmother. Attempts will be made to increase the mother's commitment to her child's cognitive development and progress by more fully involving mothers in the active running of the Center's program.

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V THEORETICAL AND METHODOLOGICAL ISSUES

Baratz, J. C. & Baratz, S. S.

The social pathology model: Historical bases for psychology's denial of the existence of Negro culture. Paper presented at the meeting of the American Psychological Association, Washington, August 1971.

This paper seeks to portray the ethnocentrism of the social sciences in studies dealing with the Negro. The authors contend that psychology has not dealt with Negro behavior and culture. The absence of a meaningful conception of Negro culture has forced the interpretation of almost all of psychology's data on the Negro into two categories: either that of biological incapacity (genetic inferiority) or social deviance and pathology (environmental deprivation). A third possible category would be that of cultural difference; this paper will explore the reasons why psychology has never given credence to this concept as a device for research and design.

The cultural difference model asserts that statistical differences noted in intelligence testing, family and social organization and attitudes are surface manifestations of the viable, structured culture of the Negro-American. The authors suggest four sources for the failure of psychologists to recognize Negro culture (except in a negative sense, such as in the culture of poverty). The first is the basic ethnocentrism of psychology; the literature concerning language behavior is a case in point. There is a refusal to grant legitimacy to Negro dialect as a system which is fully developed, highly structured, but different grammatically from that of the standard English criterion. Non-standard Negro English is viewed instead as defective and deviant from a cultural norm (which is only a norm in the ideal since few Americans speak standard English).

A second source of the denial of Negro culture lies in the sociopolitical myths surrounding our concepts of cultural assimilation. These include the melting pot myth; America is said to be the result of the elimination of impurities and the blending of the best elements of diverse cultures. But there has been little discussion of the contributions of African culture to the American mainstream (such as aspects of Southern politeness behavior). The retention of ethnic differences was considered to be un-American, thus the residue of distinctethnic behavior retained over several generations was considered to represent the genetic element of behavior. Thus, racists used differences to "prove" inferiority; in rejecting the racists' theory about Negro behavior the psychologist also rejected the behavior itself. Another socio-political myth concerns racist descriptions of Negro behavior and the interpretation of those behaviors.

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Differences (such as performing a dance when they laughed, and rolling their eyes) were used to invent a theory of racial inferiority. From that point, psychologists could only equate observation of behavioral differences with stereotypic expression of prejudices, rather than assess them as reflections of a particular culture. A final myth relates to the Negro past; the naivete of social scientists concerning the processes of acculturation has led them to assume that the Negro lost all of his characteristic African behaviors merely because he forcibly left Africa and resided on American soil for several generations in slavery.

A third source of failure to recognize black culture has been ignorance concerning the fundamental notion of culture. Because of lack of understanding of the processes by which a distinct cultural form becomes transmuted, Negro dialect was viewed as poorly-learned English, the matrifocal family was characterized as an example of male emasculation, the extended kinship systems were seen to be disorganized families and the clothing choices were seen as poor taste. However, the dialect which many Negroes speak includes many forms that are substantially similar in structure to the African languages of their forebears. Through the anthropological concept of cultural relativity, the Afro-American's distinct behavioral patterns are seen as the product of the interaction of distinctly African cultures with the slavery and post-emancipation American society. The uniformly lower IQ scores of Negro children are merely a manifestation of actual cultural differences - the dialect, rhetorical style, epistemology and response styles of the distinctive Negro culture. IQ scores thus can be seen to indicate the degree to which Negro children (or any others, for that matter) have bought into, or learned, the mainstream culture; they do not indicate the potential of Negro children for buying into the system. While the Stanford-Binet was retranslated for language and cultural differences for use in England, this was not done for use with Afro-Americans, undoubtedly, because of the absence of a meaningful conception of Negro culture.

The fourth source of denial of Negro culture is the embarrassment of the black middle-class and the white liberal in dealing with behavioral differences. This is in the form of a "politeness conspiracy" - to not talk about behavioral differences even when they are most apparent. But this does nothing to make such differences disappear, and it also leaves the liberal with the only alternative to call the American Negro a sick white man (sick in the social sense). Professional black social scientists also have little conception of Negro culture outside of the culture of poverty model. Only with the recognition of a culturally different system can we hope for biculturalism, where the Negro can learn the white cultural system without having to reject his own system and in so doing, himself.

The model of racism proposed by the authors is the denial of and/or denigration of cultural differences. They urge that the legitimacy of the Negro-American culture system be admitted once and for all.

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Blank, M.

Implicit assumptions underlying preschool intervention programs. Journal of Social Issues, 1970, 26, 15-23.

Some issues and problems related to preschool intervention are discussed. Because of the urgency of intervention needs, psychology and education have had to develop guidelines for action even though they possessed only limited information to use as bases. As a result, decisions about how to proceed have been based on a variety of theories, including many of questionable validity and relevance to the functioning of disadvantaged children.

The rationale for preschool intervention has been based in part on optimism about the modifiability and flexibility of human behavior, with hope resting strongly on the idea of early intervention. Deficits focused upon have been primarily those in the learning area, although it has also been argued that a more pervasive motivational factor, an entire approach and attitude toward life, is of importance. Even when there has been agreement as to the learning nature of the deficit, there have been arguments about the course of remediation. While causal relations should have provided the basis for remediation, correlations were all that was available, and the latter have formed the basis for the most common approach, "overall enrichment". This approach is questioned because it involves major intervention which is costly, it does not allow gains to be related to particular aspects of the program, and even with such massive intervention, the gains are equivocal. The appropriateness of the developmental philosophy is also questioned; when the environment is viewed as affecting rate but not sequence of development, important individual differences may be ignored. Traditional nursery schools (which tend to take an overall approach) may not be appropriate for disadvantaged children because the teacher does not have the control necessary to shape the child's learning.

The perceptual dysfunction viewpoint is one attempt to identify specific factors responsible for learning disorders. But this view is relevant to the disadvantaged child only if it can be demonstrated that he is deprived of early sensorimotor experience opportunities. The author has found that cognitive demands imposed by the task may be more responsible for poor performance than inadequate perceptual functioning.

Regardless of the orientation of enrichment programs, language has emerged as a common denominator of the learning deficit. But which of the extremely broad range of language skills need to be fostered has not been determined. The author contends that the important question is how effectively the child uses the language system he already possesses.

Intervention programs focused on language typically try to offer every possible language skill that may be important. Research is needed to learn whether the rote repetition of language will lead to the development of underlying cognitive structures. Another problem is that almost total reliance is placed on group teaching in most education programs; the possible effectiveness of short periods of daily individual instruction has been given little attention.

The author developed a program of individual teaching designed to foster the precursors of abstract thinking that are needed by the preschool disadvantaged child. Learning difficulties were seen to reflect the child's failure to develop a symbolic system which would permit him to

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see the plentiful stimulation available in a coherent, logical and predictive framework. The program focused on developing a repertoire of cognitive skills which would help the child acquire strategies of thinking and information processing that would transfer later to more complex learning situations. A common core of the program was the representation of reality through language. (For example, if the child said a piece of metal would break when it fell, he was asked to let it fall and see if it did indeed break.) In a one-to-one teaching situation sustained sequential thinking can occur and the teacher can continuously readjust the lesson.

This program was used with 12 three to four year olds. After three months, the mean IQ increases for children tutored five and three times a week were 14.5 and 7.0 points respectively. Three children receiving individual but not cognitively oriented sessions did not gain. Comparable results were obtained with kindergarten children, but clinically speaking the performance changes were harder to achieve; this would reinforce the belief in the importance of earlier intervention. The question of the length of time gains will be maintained in relation to length of time in the program remains unanswered.

Bronfenbrenner, U.

A theoretical perspective for research on human development. Unpublished manuscript, Cornell University, 1972.

The author contends that the scientific model typically employed for research on human development is inappropriate, as well as impoverished in at least four respects. It is ordinarily limited to a two-person system (one experimenter and one child), the process taking place is conceived as unidirectional (the effect of the experimenter) is usually a stranger, and this two-person system exists in isolation from any other social context. Thus, the model is ecologically invalid, because children actually develop in quite different situations.

To be ecologically valid a model should have the following characteristic: It must have reciprocality, or be conceived as a two-way system. Corollaries of this are a) the child is a stimulus with "demand characteristics", and b) the child is a socializing agent, who also trains the mother (and others) in a relatively lasting way. Some research designs which would make possible the analysis of socialization as a reciprocal process include (as examples) a study of the effects of actual and attributed sex on adult-infant interaction (Garbarino is studying caretaker behavior toward infants identified by false names, half of the opposite sex) and a study of the impact of the child's initiative on mother-child interaction (when a preschool child takes the initiative in looking at a story in comparison with the usual maternal initiative). In both of these examples, both adult and child behavior are dependent variables, with the ecological situation being what is systematically varied. Also, such research requires interactional analysis.

A second requirement of an ecologically valid model is that the roles of participants besides the child be specified and systematically examined; there are basically two types of roles. First, there are "significant others", which denote relatively enduring roles such as father, sister, etc. Beyond infancy we know very little about mother-child interaction (except from verbal report), and practically nothing about father-child interaction. Sibling relationships are virtually unexamined, as are the roles of adult relatives, or babysitters. The second type

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of role which should be specified is the generalized role (how are children affected by, and how do they affect people varying in age, sex, social background, etc.), particularly in relation to the experimenter.

The model must also be expanded to more than a two-person system; expanding the socialization system increases opportunity for both role differentiation and reciprocal response. (The nuclear family is one important three-person system, as is the mother and her first and second child.) The influence of a third person on the pattern of reciprocal interaction between the other two is clearly important.

The model must include analysis of second-order effects (the mother and child may behave differently toward one another in the presence of a stranger, or how does the father's behavior with the child vary with the presence of the mother?). Second-order effects are not necessarily people; what influence do cognitive stimulation devices have on adult-infant interaction? What is the impact of television on the socialization processes within the family (the primary danger of television may not be what it produces but what it prevents)?

A valid model must also incorporate experimental human ecology. While we may know that social class differences exist, most studies tell us little about the processes through which cultural or class values come to affect childrearing practices, or vice-versa. Experimental human ecology is required (an example is Skeel's research with two groups of institutionalized children, one placed at 3 years of age in the care of female retardates, the other not; the former group when followed up in middle age - 30 years later - was self supporting; the latter, still institutionalized). The intervention studies in care of infants and parental training are experiments in human ecology. The importance of parent involvement for intervention to achieve lasting gains provides support for viewing the child's development in its ecological context. The author has argued elsewhere that the key to understanding socialization in the Western World lies in the phenomenon of segregation by age, and the alienation it produces.

It is the author's contention that most of the environmental variance in human capacities, motivation and behavior derives not from first-order socialization effects in the family, classroom or peer group, but from the second-order impact of other societal institutions.

A few possible research designs for such an experimental human ecology are offered. For example, the amount of time parents spend in interaction with school age children (and the consequent effects on behavior and performance both in and out of school) could be compared for two low-cost housing projects, one with shops and services within walking distance, the other without.

Throughout the paper, the author cites research which illustrates the points being made.

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Horowitz, F. D., & Paden, L. Y.

The effectiveness of environmental intervention programs. Draft of chapter to appear in B. M. Caldwell and H. Ricciuti (Eds.), Review of Child Development Research, Vol. 3.

In this chapter some of the assumptions which underlie intervention programs are examined. Two issues are seen to be at the forefront of the controversies regarding early intervention. The first issue concerns the relative importance of a consistent mothering figure (referred to by the authors as the maternal deprivation issue). The second issue concerns the degree to which environmental manipulation can effectively change developmental outcome (the nature versus nurture issue).

Selected experimental intervention programs are reviewed; most are preschool programs (for children 3 to 5 years of age), including Head Start. The only center program for infants described is the Syracuse University Children's Center (when B. Caldwell was the director, up to 1969). The home intervention programs for infants discussed are those of I. Gordon, E. Schaefer, and G. Painter. The authors point out that once an investigator begins prescribing patterns of mother-child interaction, he cannot avoid questions of value and cultural relativity. It may be the case that subcultures retain their identity in the subtle and complex patterns of interpersonal interaction which one generation teaches another. The extent to which infant intervention programs disturb or enhance this process is presently unknown. Other questions raised by the authors relate to parent education techniques and judgments concerning the adequacy of mothering. Whether enduring effects will result from infant intervention programs remains an open question.

Some general terms and conceptual approaches related to environmental intervention programs are examined. The authors emphasize that enrichment occurs in a cultural context. It is clear that environmental factors play a significant role in development; however, the degree to which environment can be manipulated to effect developmental outcome must be questioned. Further, this raises the question of what constitutes normality. Normal development can be defined culturally (in the sense of cultural relativity). In the U.S., the isolated subcultures (such as Afro-Americans, Spanish-Americans and American Indians) have generally been classified as members of the lower classes rather than as members of co-existing cultures. Their failure to perform well on many measures relative to the middle classes has been taken as evidence of failure to achieve or learn rather than failure to be taught. Also implicit is the notion that the standards of middle class achievement are "better", thus the acceptance of a "deficit" model explanation for the performance of subculture members. The cultural difference (rather than deficit) model has been difficult to establish in part because of lack of information about the different cultures. A second way of defining normalcy has been in a statistical sense. However, what constitutes a statistical average has sometimes been termed normal even when the data have not been truly normative; the samples may have been too small, or not representative of the entire population to which the norms are eventually applied. A third concept of normal development is biological, usually implying notions of progression and sequence with some general involvement of the concept of timing. Normal development in this sense is a biological baseline which is subject to alteration. The delineation of the need to qualify the notion of normal development makes it clear that evaluation of the effectiveness of environmental intervention and enrichment must also be qualified.

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A second concept questioned by the authors is enrichment. Often this term is used to mean the supplementation of natural experience which is adequate without enrichment but better with it. Sometimes the term is used as a synonym for intervention. Intervention, however, implies the expectation that if the individual is left to the natural course of events, the outcome is likely to be unsatisfactory; the natural course is judged to be inadequate for insuring normal development. When applied to older children, intervention is termed remediation. The timing of the experience and the intended purpose of the action distinguish enrichment, intervention, and remediation.

The timing of the experience raises a third issue related to intervention. Some very complex questions about development are involved. Among these is the question of whether or not there are critical periods in development and if so, whether certain events or experiences must occur for development to proceed normally, or whether such critical periods merely mean that development will be optimal if certain types of stimulation take place. The data indicate that if one wants to intervene effectively, it should be done before five years of age, but within that gross time period there is little to suggest when intervention might be most advantageously begun.

A fourth issue in relation to intervention programs concerns the criteria to be used for judging success. The standardized measures of performance have been attacked for social and ethnic class bias, as well as for being too global and thus missing important areas of intellectual competence. In particular, criteria for language competence are quite limited. Moreover, programs which ignore the acquisition of a different response repertoire may design curricula which will be only minimally effective. Within each subpopulation one can expect to find a normal distribution of abilities and performance. The society could determine what was necessary for success, assess what had been effectively taught, and offer children the opportunity to learn another set of responses. The authors suggest that the delicate balance between preventive intervention and cultural annihilation must be found.

Hunt, J. McV.

Psychological assessment, developmental plasticity, and heredity, with implications for early education. Paper presented in Theories of cognitive development: Implications for the mentally retarded child, symposium sponsored by the South Florida Foundation for Mentally Retarded Children, Miami, November 1971.

The term mental retardation implies that time per se is the central factor in mental development. This view of the role of time has been strong and persistent, along with emphasis on the longitudinal predictive value of IQ. The author believes these views to be incorrect. He argues that false confidence in a view of intelligence as a kind of power in which individuals differ consistently regardless of the circumstances of their lives has distracted both parents and teachers from focusing on what is to be learned. He puts forth a revised conception of intelligence which he hopes will encourage rather than discourage ingenuity in teaching.

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Hunt views IQ scores as valid only as an assessment of past acquisitions. Intelligence testing has assumed equal opportunity for learning, but variations in nutrition, motivation and values or standards have all been shown to be related to the development of cognitive skills. Significant correlations in IQ scores across time have been interpreted as indications of their validity in reflecting stable individual differences in rate of development. The author argues instead that such correlations between successive testings involve part-whole relationships which are completely irrelevant to assumptions of inherent stability in rates of development. He contends, in addition, that the developmental impact of home and neighborhood environments is relatively consistent, and can also account for significant correlations across time. The plasticity in psychological development is what should be emphasized, both with and between its various domains. Thus, developments within the cognitive domain are of importance for development in other areas. The failure of so many systems of compensatory education to achieve lasting gains has not been due to the specific nature of potential gains but due to the failure of such systems to provide experiences calculated to inculcate ideal self-concepts. Necessary self concepts include professed ability to learn readily and pride in such learning; both yield autonomous striving. The period from ten months to 3 years (when infant capacities for manipulation and locomotion put considerable stress on mothers) is the time when child-rearing practices probably differ most and are most likely to show in competence differences at about age three. Hunt views competence, or such a learning set, as being basically cognitive in character. This has implications for measurement; the nature of the successive learning sets which enable and motivate a child to process information and to solve problems at successive levels of complexity needs to be determined. Measurement based on such a view of learning would be of the criterion-reference type rather than the norm-reference sort of measurement now widely used. In criterion-referenced tests, the meaning of any individual's performance derives directly from the behavioral goal of the educational experience provided for him. However, such a testing system lacks a developmental frame of reference which can help explain failure and guide a teacher's choice of learning experiences. Another strategy advocated by Hunt is the use of ordinal scales of psychological development. Working from Piaget's theory, the author and his colleagues have developed such scales (Uzgiris-Hunt scales). He points out that the issue of whether development is continuous or stepwise need not be involved (he believes it to be continuous). Using these scales, further evidence for plasticity in development has been found. In particular, wide ranges were found in the ages at which infants exhibited mature reaching and following an object through one displacement (a task on an object permanence scale). The author views these findings as demonstrating that the circumstances encountered by children can make a very substantial difference in the ages at which such early intellectual and motivational landmarks are achieved. He views the contribution of heredity as setting limits for the norm of reaction, in other words, in determining the size of the difference between phenotypic measures which will come from any two sets of differing circumstances.

These revisions in the concept of intelligence and its measurement have implications for those concerned with the mentally retarded. They provide suggestions for fostering intellectual and motivational development. In addition, study of mentally retarded children may help to uncover the nature of the hierarchy of learning sets.

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Kessen, W.

The near future of research with young children. Paper presented at a conference sponsored by the Office of Economic Opportunity, 1970.

According to the author, those interested in research with young children must be concerned with procedures, designs, agencies and federal commitments which will support defensible research on problems that have immediate and foreseeable consequences for American children.

An examination of the research with human infants conducted over the past decade leads to the conclusions that 1) the output has been enormous, 2) there has been an obsessive concern with measures and method, 3) "the child" is viewed quite differently by each school of thought, for example, learning, psychoanalytic, and Piaget, 4) the research cannot answer specific questions about early education, about the child and his family, or about the role of thought and emotion in the child's development. However, while the theory and findings are incomplete and diverse, psychologists nevertheless make proposals for action (for example, intervention to promote the development of cognition, or social relations, or language). The author feels systematic justification for particular programs, including those upholding supplementary care outside the home, does not now exist. Professionals should give advice, but each should make his biases explicit (such as his assumptions concerning the nature of the child, the kind of adult he wants the child to become, his presuppositions about family structure, etc.). That is, professionals should make clear when offering opinions that their views are only opinions and that the answers are by no means all in.

The author then presents his particular image or view of the child. He sees the child as a theorist for whom the environment is both a source of problems and a verification system. Children's families differ both in the problems they set for their children and in the answers they will accept from them. However, there are some problems that are universal for all infants. First comes the definition of peace and stability; researchers need to specify the conditions that give rise to baby's feelings of peace and stability. Next come his first attempts at mastery; his early experiences in these causal sequences will strongly influence his later sense of personal worth and competence. The emergence of intentionality comes third; Piaget may be the only person to have addressed this problem. The functions of language come next; not only is the development of linguistic competence at issue but also the functions of language. The final problem the baby must face in the first 18 months of his life concerns the uses of play. It seems that play is a strategy used in order to understand both social structure and the workings of the physical world.

Unfortunately, just when extensive and continuing research is most needed, obstacles to conducting that research are being raised by the well-informed as well as the ill-informed, by old friends of the behavioral sciences as well as by new enemies. The author outlines several propositions which may help to reduce the growing gap between our knowledge about young children and our practical need for knowledge. First, he advocates that researchers be included as colleagues in planning operational programs, to alleviate the not uncommon separation between program planning and research evaluation. Next, a system of research advocacy could be set up; this would include the research colleague as advocate, federal protection for research (similar to the British system of Her Majesty's Inspectors), and a larger federal staff in support of research. Third, intensive panels should be set up for study (meaning groups to be

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studied intensively over relatively short periods). Fourth, a small number of settings in any large program should be reserved for research (central operation and evaluation). Fifth, reforms or new programs should be used as experiments. Sixth, sampling across systems should be used in both large-scale intervention programs (e.g. Head Start) and naturally occurring innovations (e.g. day care). Seventh, multiple treatments rather than the experimental-control model should be used; each of several groups would receive a different manipulation designed to have some positive impact on children. Eight, the seductive annex (combining service with research, and therefore eliciting participation) should be developed. Research programs should offer services; the old "come help behavioral science" is insufficient. Ninth, the experimental "tilter" should be used. A "tilter" would be an individual, or perhaps written input, which would attempt to bias or influence a group or program in a particular direction. This would be a less expensive method of achieving change than providing specific training, for example to teachers.

A priority must be given to examining the circumstances that warrant child care in different settings; one beneficial outcome would be information about what happens in homes. The author feels strongly that careful, objective research must be an essential part of attempts to better the lives of children.

Kohlberg, L.

Early education: A cognitive-developmental view. Child Development, 1968, 39, 1013-1062.

The implications for preschool education of the cognitive-developmental theories of Baldwin, Dewey, Piaget, and Vygotsky are discussed. The cognitive-developmental or interactional view is based on the premise that cognitive and affective structures which education should nourish emerge naturally from the interaction between the child and his environment when such interaction is fostered. It is in the structure of the interaction between the organism and environment that the source of cognitive structure and cognitive development is found. The author differentiates this interactional view of the origins of knowing from learning and maturation theories.

Studies of the development of conservation and dream concepts are reviewed. They give little support to the notion that development on basic Piaget-type cognitive functions can be markedly accelerated by deliberate intervention. When acceleration is obtained it tends to be limited, specific, and contingent upon a narrow time gap between the intervention experience and the child's natural readiness. The readiness is determined by age, IQ, and the richness of general stimulation in the child's background.

While the speeding up of cognitive-structural change is extremely difficult to achieve, it is likely to have long range general effects since the theory of invariant sequences implies that advances in one step of development may lead to advances in the next step. In contrast, specific learning will be more easily achieved but unlikely to have long range developmental effects. Reading and writing (especially reading) are described as relatively low-level sensorimotor skills which are not particularly challenging to older children. On the other hand, preschool children are likely to find learning to read and write quite enjoyable, and that

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would be reason enough to introduce such tasks at that point. This would free elementary school time for more cognitively valuable activities. The same principle that suggests that novel techniques may allow early learning of reading to be more enjoyable, also proposes that conventional methods of teaching reading might be begun later than usual with culturally disadvantaged children, when their interest might be greater.

The assumption that advances in language will cause advances in cognition is questioned. Although language stimulation is a major component of preschool programs for disadvantaged children, there is no evidence that language-focused preschool programs are of any greater value than any others in leading to improved cognitive functioning. From the Piagetian viewpoint language and thought develop interdependently and in parallel.

The issue of whether the preschool ages are a critical period in the development of psychometric general intelligence is raised. The Piagetian position is that there are developmental phases of sensitivity, but these are tied to the child's behavioral level, not to chronological age. Not only is stimulation effective only under conditions of match (between developmental level and stimulation) but experience at a given period of appropriate match is sufficient for the development of a specific structure, and continual supplementation is not required. The stage concept implies that cognitive structures are irreversible. Rather than implying that earlier levels of development are generally more sensitive to critical stimulation, Piaget's theory suggests that sensitivity to environmental stimulation tends to increase rather than decrease with development. The child requires successively more complicated forms of stimulation, so that the effects of stimulus deprivation would be expected to become more critical as the child develops further.

The author argues that the stability of intelligence test scores after age six is not due to the completion of half the elements composing adult ability (as Bloom has argued) but may be due to the continuing stable influence of both heredity and environment with age. Deprivation of the environment, when it exists, may merely be fairly constant. Also, "twin studies suggest that at least 50 percent of the reliable variation in general intelligence test scores (if reliably or repeatedly measured) at the school-age level among a 'normally' reared, medically normal group of American children is contributed by hereditary factors" (p. 1049). Tests in infancy do not predict to adult status because they do not measure the same dispositions.

It is argued that specific types of preschool academic and linguistic training, even if immediately successful, are unlikely to have long-run general beneficial effects, and programs aimed at raising general psychometric intelligence are unlikely to have marked success. A Piagetian approach might generate somewhat more general and long-range cognitive effects. Basically, however, the Piagetian approach does not generate optimism regarding the possibility of preschool acceleration of cognitive development (or of compensation for its retardation), nor does it lead to a rationale in which such acceleration (or compensation) is especially critical during the preschool years. The cognitive-developmental theory does less to support radical new preschool cognitive stimulation programs than it clarifies the child-centered developmental approach to education expressed in its broadest form by John Dewey.

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Lewis, M., & Johnson, N.
What's thrown out with the bath water: A baby? Child Development, 1971, 42, 1053-1055.

The authors challenge the assumption that infants who fail to provide data and are therefore discarded as subjects are exactly like those used. This sampling problem was explored by comparing data from "incomplete" subjects (those who did not complete the experiment) with data from "complete" subjects.

Fifteen subjects, 3 and 6 months of age, who did not complete the experiment were compared with 22 infants seen at the same time and the same age who did complete it. One visual and one auditory series of stimuli were given during each of two sessions, held one week apart; complete subjects were those for whom data were obtained on all four series. Only visual data are reported. Amount of response on trial one, response decrement over the six trials of the same (simple or complex) stimulus, and response recovery on trial seven (complex or simple stimulus), were obtained for fixation time, cardiac deceleration (change in beats per minute) and activity decreases.

For the incomplete subjects, mean fixation on trial one for the simple series was 14.5 seconds, compared with 13.5 seconds for the complex series, an insignificant difference. For the complete subjects, the times were 8.7 and 14.8 seconds respectively, a significant difference. Moreover, the complete subjects showed significantly more discrimination between the complex and simple stimuli than did the incomplete infants. The response decrement data revealed no group differences. The response recovery (trial seven) data were reminiscent of the trial one data; for incomplete subjects, 11.6 and 12.0 seconds for the simple and complex series versus 9.6 and 12.7 seconds for complete subjects. The activity data revealed no significant differences between groups, but there was some indication of greater quieting on trial one for complete subjects (complete subjects' mean score = .46, incomplete = .36). The cardiac deceleration data showed the same pattern. Complete subjects had a mean drop of 9.23 beats per minute (bpm) in rate on trial one, while incomplete subjects had a mean drop of 7.63 bpm. There were no differences in response decrement, but the recovery of complete subjects was more than twice that of incomplete subjects (10.47 bpm drop as opposed to 4.91 bpm drop, $p < .01$).

The incomplete infants in this study constituted 26% of 60 subjects finally seen. These results demonstrate that infants unable to complete the experiment showed different attentive patterns than those who did complete the sessions. The findings indicate that the elimination of infants may seriously bias reported data. Such sampling constraints call into question the generality of normative findings in infancy.

Maccoby, E. E., & Jacklin, C. N.
Sex differences and their implication for sex roles. Paper presented at the meeting of the American Psychological Association, Washington, August 1971.

The development of sex differences in certain kinds of behavior is examined. The repercussions of such differences (or their lack) for adult sex roles in modern society are also discussed.

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The authors begin by questioning the assertion that women and girls are passive, and the use of the term passive-dependent. It is noted that the various meanings of the term passive are not entirely consistent. A review of observational studies on dependency led the authors to conclude that no consistent sex differences had been demonstrated. However, ratings generally show girls to be more dependent than boys, indicating that observers are sensitive to what is considered to be sex-appropriate behavior. One investigator found that behaviors were especially noticed if they ran counter to sex-role stereotypes. Some studies of attachment and dependency are reviewed; it is concluded that the bulk of the evidence indicates that dependency and attachment behaviors are characteristic of all human children. There is little sex differentiation in these behaviors from infancy through the preschool period. Situational factors may be important in eliciting such behaviors, but they have not been specified. The authors distinguish more generalized affiliative and sociable behaviors from passive-dependent behaviors.

Activity level is another aspect of passivity; a survey of the literature makes it clear that there is no general sex difference in activity level. There may be a tendency for boys to respond with more energy or movement in certain stimulating conditions, but the features of such situations have not been identified.

There is little evidence to indicate which sex is more likely to initiate interaction. The one area in which differences have been consistently found is in aggressive behavior; males appear to be more aggressive as a result of both innate and training factors. The authors base their belief in some biological contribution to greater male aggressiveness on the evidence that: 1) sex differences are cross-culturally universal, 2) the differences are found as early in life as behavior can be observed, and changes with age appear to reflect hormonal levels more than socialization, 3) similar sex differences are found in man and sub-human primates, and 4) females can be made more aggressive through parinatal administration of male hormones. They point out that the two sexes have a differential readiness to display aggression, and that males will show more vigor and activity in the presence of an aggression-provoking stimulus.

Another area of possible sex differences that has important implication for sex roles is the response of the two sexes to infants and children. Some conclusions based on the animal literature are presented. Very little is known about the responses of men and boys to infants and children. Data obtained by Barnett, Leiderman, Grobstein, & Klaus (1970) suggest that there may be a critical period after birth during which contact with an infant has a maximal effect in arousing maternal responsiveness, but no parallel study has been done with fathers. The authors suggest that the human infant (its sight, taste, smell, etc.) may be the adequate stimulus for the arousal and maintenance of maternal behavior; whether an infant would bring out the same amount of paternal nurturance is unknown, but it seems likely that nurturant responses are more readily elicited from women (especially if they have just given birth or are nursing).

It is hypothesized that inequalities in status, rather than biological factors, have given rise to many sex differences taken to be fundamental. Traditionally, three biologically-based sex differences may have pushed society toward status differentiation: 1) the male's greater physical strength, 2) his greater aggressiveness, and 3) the female's childbearing and nursing. In modern society, these factors are less valid reasons for status differences, and aggression may even interfere with work. Roles based upon sex have come to occupy a diminishing portion of life today.

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Moss, H. A.

Methodological issues in studying mother-infant interaction. American Journal of Orthopsychiatry, 1965, 35, 482-486.

Direct observation is argued to be a highly suitable method for studying mother-infant interaction, although not without problems. Mothers' retrospective reports and responses to questionnaires have proven fallible. One of the problems with the observational method is the question of the representativeness of the mother's behavior (she may be self-conscious and guarded). Another is that important but infrequent events may not occur, although scheduling of observations can help to alleviate this. There is too much information available, so the investigator must select behaviors, thereby slanting his study. Recording of observations can be done by observing, taking notes, and later composing a narrative report, or by time-sampling (probably more accurate but unable to capture sequences or patterns). The lack of standardization inherent in naturalistic observations is both a strength and a weakness; one must compromise to impose a structured circumstance in the interaction. The author has found certain tactics helpful in dealing with some of these problems. De-emphasizing to the mother her status as a subject, scheduling most observations for the morning, when activity seems greatest, and making long and frequent observations seems most successful.

A study being conducted by direct observation of 25 mothers and infants is briefly described.

Murphy, L. B.

Individual differences and their relation to the environment and the care of the baby. Prepublication draft, 1967.

The author argues that the assessment of developmental status must be carried out in the context of an awareness of the enormous range of individual differences found in any normal sample. The positive resources of babies and their capacity to develop ways of coping should be recognized along with their particular sensitivities. In addition to individual differences in variables such as muscle tone and eye-hand coordination, there are wide differences in emotional responsiveness and sending power (ability to communicate wishes, discomfort, etc.) The wide range of individual differences also includes differences in degrees and patterns of vulnerability.

Murphy, L. B.

Developmental integration in childhood. Paper prepared for New York Academy of Sciences Conference on Integration, May 1971.

Developmental integration refers to the successive emergence of differentiated, and subsequently organized, patterns of somatic and psychological functioning. Little is known about the evolution of integrated structures, except for a few studies of cognitive style which have addressed the integration of thought and motivation. The process of achieving integration can be observed directly in sucking, vision, eye-hand coordination, and locomotion, but not in internal functions. The author argues that the study of developmental integration should

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isolate integration at the psychophysiological level (the behavior of the vegetative systems) from integration of cognitive functions.

Factors which may interfere with progressive integration include extreme sensitivity to sensory overload. Thus too much stimulation must be avoided for some children. The normative approach to the study of development (e.g. Gesell) grossly ignores the wide range of individual differences, and may produce stress (in terms of cultural pressure to conform to norms) for children who are healthy but do not fit the norm.

Stages in the integration process include the formation of attachment and motor-affective self integration. At about six years the internalization of social prohibitions begins along with the grasp of the structure of games. Until then, myelinization of nerve cells is not complete. This is an example of the relationship between integration in the cognitive and psychophysiological spheres.

The author suggests that the present cultural trend toward maximizing early learning (e.g. the push to teach preschool children to read) may threaten personality stability if such efforts are undertaken before basic motor control, language, and other fundamental patterns are established and integrated.

Sigel, I. E.

Developmental theory: Its place and relevance in early intervention programs, in W. Overton (Chm.), the Psychology of early intervention. Symposium presented at the meeting of the Society for Research in Child Development, Minneapolis, April 1971 .

The author argues for viewing intervention from a broad theoretical perspective, noting that such programs have been pursued with maximal pragmatic concern and minimal concern for developmental theory. Intervention, the introduction of planned programming deliberately timed and arranged in order to alter the anticipated or projected course of development, is based on the assumption that educational failure is reducible to limited deficits, in the cognitive sphere particularly. Assumptions that have been made regarding remediation are that the deficit (so-called) is amenable to correction, that if it is corrected, the correction will persist over sufficient time, and that the criteria of academic success are clear along with their antecedents. The use of IQ as a criterion is not based on any theoretical analysis, but on the assumption that if it increases, school success should emerge, despite acknowledgement of the importance of factors such as nutrition and motivation.

It would seem more sensible to find the necessary and sufficient conditions for academic success, and then train the children in these prerequisites. But why is success in the conventional school system the objective? Follow Through was rationalized as a change in the educational system not because of its faults but because Head Start children did not seem to make gains, a not surprising result when Head Start and typical school programs are compared.

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Intervention programs have assumed the unlimited potential of the individual for change; this is an open question. The modifiability of the organism, in terms of rate, quality and limit need to be studied.

Some theoretical questions with relevance for intervention programs are discussed. The first concern is based on the proposition that the human organism is made up of a variety of subsystems; what is the relationship between the various systems? The answer will have repercussions for the sequencing of different kinds of training. Second, what is the longitudinal relationship between subsystems? The relations of skills and competencies to other aspects of the organism may vary over time. Third, what is the optimal timing of intervention, in terms of vertical and horizontal intersystem relationships? The earlier the better notion has not yet been substantiated. Fourth, to what degree can the children assimilate and accommodate to the program, in terms of both developmental level and type of experience. Fifth, what is the cumulative impact of experience? Certain cognitive skills may be independent of each other in early childhood but not later. Sixth, what are the stage setting properties of experiences? Certain phenomena may set the stage for accomplishment of other tasks. Seventh, what is the extent of modifiability; are there some human characteristics which once acquired cannot be altered? Eighth, what is the relationship between the child and his broader environmental context? Intervention may mean some fundamental life-style changes for him and his family, and this may lead to disequilibrium in his family system. The timing of modification for members of family systems must be carefully considered in terms of their interdependence. Finally, what is the social significance of intervention?

It is crucial to conceptualize not only the growth of the child but the system within which he is functioning.

Spicker, H. H.
Intellectual development through early childhood education. Exceptional Children, 1971, 37, 629-640.

Arguing that early childhood intervention programs vary so widely that blanket statements about their success or failure are meaningless, the author identifies and examines some of the critical variations.

Traditional preschools tend to be relatively unstructured, with curriculum unspecified. More direct approaches can be broadly described as following a cognitive development model (e.g. Kames, Weikart), a perceptual motor development model (e.g. Montessori), or an academic skills development model (e.g. Bereiter & Engelmann). The few studies in which various models have been compared are described, along with the author's five conclusions. The largest IQ score increases seem to be produced by curriculum models stressing cognitive or academic skill development. Traditional curriculum approaches tend to produce significant score increases when part of an investigation but not otherwise; the former tend to be highly structured with short- and long-term goals specified while the latter are not. Structured programs other than cognitive or academically oriented ones produce intellectual gains only when they incorporate strong oral language components. Preschool academic skill programs

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tend to produce rote skills rather than improved comprehension and reasoning skills. Unless the primary grade curriculum is modified, preschool programs must develop the fine motor, memory and language abilities required for success. Abstract reasoning, critical thinking, and creative thinking seem not to be valued in many primary schools, particularly in inner cities.

Home intervention programs seem to contribute to increased scores when no preschool program is available, but add little to center intervention. However, horizontal diffusion effects into the neighborhood and vertical diffusion in the family are positive aspects of home intervention. There appears to be no particular advantage between ages three and four for beginning intervention, but programs for three and four year olds do not tend to be different. Long-term results of earlier intervention are not yet available. The duration of intervention question also remains open (one versus two years); if increased IQ scores are the criterion, a plateau effect must be expected. Finally, one common feature of successful intervention programs is a high ratio of adults to children in the classroom. This seems to be a result of the use of the aide as a teacher rather then merely for nonacademic, housekeeping chores.

• The extent to which these conclusions are applicable to infant intervention programs is unclear. For example, infant programs with specific curricula have not been compared with those providing less structured intervention.

Streissguth, A. P., & Bee, H. L.
Mother-child interactions and cognitive development in children. Unpublished manuscript, University of Washington, undated.

Research findings and methodological issues concerning the relationships between parent-child interactions and the cognitive development of the child are discussed. The authors note that more is known about the effects of mother-absence in children's intellectual development than of the effects of mother-presence. Particularly lacking is information about the effects of specific childrearing practices. The review is focused on observational studies.

Methodological questions which are important in interpreting studies include which units of behavior were measured, how was behavior sampled, in what situation (natural or laboratory setting), what ages of children were studied, what controls for psycho-social-biological characteristics were used, and what observer influences might there have been. When the relationship of mother-child interaction to cognitive development is in question, then it is also important to know how intellectual development was measured, and at what time intervals.

Studies addressing the relationship between social class and mother-child interactions are reviewed, including several focused on maternal teaching style. Studies of mother-infant interaction are also reviewed, and while some conflicting evidence is found, the authors conclude that the weight of evidence favors a hypothesis of social class differences in mother-infant interactions, especially verbal. Some studies documenting short-term effects of interaction differences on cognitive development are described, as well as a few suggesting some longer-term effects. A few of the early intervention studies are reviewed, with the note that such

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programs tend to be concerned with demonstrating that some kind of intervention produced some kind of change in the child, rather than delineating the critical aspects of the intervention. The studies are concluded to provide evidence that the social interactions experienced by the infant do make a difference in his intellectual development, but do not say which specific interactions or adult behaviors are crucial.

One of the major difficulties with assessing effects on cognitive development is the lack of comparable measures across age; intelligence tests apparently measure something different in infancy than what they measure later. There are, however, some apparent trends:

1. Such behaviors as attention, eye-hand coordination, exploratory behavior and even infant intelligence can be modified by making changes in the infant's social interactions. It is not known how long such effects last, or how such changes are related to later intellectual development.
2. Widely different patterns of mother-infant interaction apparently occur naturally, and some social class differences apparently exist, but it is not known how critical these experiences are for later development.
3. Differences in the learning environment have been more clearly related to cognitive functioning and maturational characteristics for preschool children than for infants, but the critical aspects of the environment have not been isolated.
4. There is some indication that the contingency, tempo, and complexity of an infant's early language environment may be important.

Taylor, J.

Exploring selective problems and approaches to early childhood education. Proceedings of the 1971 Invitational Conference on Problems in Teaching - Educational Change: Implications for Measurement. Princeton: Educational Testing Service, 1972.

The author argues for early educational intervention, but points out some problems in the efforts to date.

The absence of group IQ differences in the first two or three years of life, but presence thereafter, argues for early intervention. The author cites numerous studies which lead to the conclusion that intervention should begin during pregnancy; while the linkages among psychogenic stress, physiological activity and perinatal complications are not entirely clear, concern is warranted.

Following birth, physiological variables (such as activity level, reactivity) merit attention, particularly in terms of their potential relation to cognitive variables and questions concerning appropriate stimulation levels. Cognitive variables themselves are discussed in terms of Kagan's differentiation into cognitive units and cognitive processes. Cognitive units are schema, images, symbols, concepts, and rules; they are used with the cognitive processes of comprehension, memory, hypothesis generation, evaluation, and deduction to solve problems. Too often, early intervention programs deal only with some of these, not all.

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The author argues in addition for elimination of the normative use of IQ tests on the grounds that they are insensitive measures of cognitive development; more fine-grained measurement is necessary for particularized approaches addressed to children's strengths and deficits. Also, social and emotional variables must receive considerable attention in intervention programs.

Finally, attention to maternal behaviors must recognize the paracultural (denoting parallel but different) context in which they take place, including an acknowledgment that the context has a past. For example, if black mothers do not encourage strong focalized attachment, this may have its roots in the slave days when children could not count on having their mothers with them, and such attachments might have been maladaptive.

Tulkin, S. R.
An analysis of the concept of cultural deprivation. Developmental Psychology, 1972, 6, 326-337.

The cultural deprivation concept limits the understanding of development because a) it does not promote understanding of how specific experiences affect developmental processes, b) it ignores cultural relativism, and c) it fails to recognize the political reality that the majority culture has contributed to the development of many of the "problems" seen in "deprived" populations.

Use of the concept of cultural deprivation has meant that the processes by which environmental experiences influence development have been overlooked. The finding of racial or social class differences does not further the understanding of development unless the actual processes contributing to the differences are examined. Furthermore, despite attempts (largely from anthropologists) to emphasize cultural relativism in understanding the American subcultures, middle class Americans seem far more ready to accept cultural differences without making value judgements when the differences concern cross-cultural rather than subcultural comparisons. Some social scientists fear that interventionists will totally disregard subcultural systems in their attempts to save deprived children. It is the author's contention that the intolerance of the subcultural differences of minority groups in this country stems from political priorities as much as from educational or psychological priorities. The majority culture tolerates political, social, and economic inequality and thereby actually contributes to the development of the very characteristics it considers to be depriving. This is most obvious in the inadequate medical care provided for poor children, care that continues to be inadequate despite awareness of the importance of physical health for developmental progress. Society is also responsible for some of the behavior patterns observed in deprived groups. Liebon has pointed out that preference for immediate gratification, which has been hypothesized to result from lower class childrearing practices, results from the realities of life. An "I want mine right now" orientation is really a cry of despair about a future the individual knows will be bleak, rather than a lack of concern for the future. Many interventionists have come to realize that programs should be focused on changing life conditions for poor people, rather than on changing their childrearing or other behavior patterns. Changes in such conditions of life, however, require redistribution of wealth, and therefore are likely to encounter political opposition. Lewis has observed that a "culture of poverty" exists

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only in societies where the poor are poor while others are rich, not in societies where everyone is poor, and probably not in socialist countries.

Some implications of these views for research are discussed. Social scientists probably need to develop a set of guidelines for conducting research with minority groups. They should also attempt to understand the culture they are studying. Insights could be developed by living in the minority group community, by holding meetings with community people (not just minority professionals), or by including minority group (or community) members on the research team at every level of responsibility, including initial planning. Methodological improvements are also needed when subcultural comparisons are being made. Strict controls for economic level, family milieux, health of child, and possiblyvarious aspects of the parents' own histories are required if developmental differences are to be properly investigated. Error variables introduced through testing procedures must also be reduced. When test procedures have different stimulus values for the groups being compared, "deficits" cannot be inferred from the results. The guidelines to be proposed must also make research more relevant to the needs of the communities in which the research is conducted. Researchers should be willing to structure their programs to be relevant to the needs of the people they are using. Interventionists should function as social change agents, not missionaries; intervention programs should have as their goal turning the program over to the community itself, with the outside agency acting as consultant if and when its services are requested. Several intervention programs train mothers; the question is whether after training, the mothers are eligible to apply for federal funds to expand the intervention work to other families, and whether the original interventionist will assist the mothers and be available to consult with them, and to help them evaluate the success of their intervention.

White, B. L.

The role of experience in the behavioral development of human infants. Current status and recommendations. Draft of chapter to appear in: B. Caldwell and H. Ricciuti (Eds.), Review of Child Development Research, Vol. 3.

The author reviews research on infancy (the first eighteen months of life) with the purpose of providing information to guide those responsible for rearing human infants. It is his contention, however, that research on early development has not produced enough dependable knowledge to provide a reliable basis for practice. Practitioners must realize that for the time being childrearing practices must be designed on an admitted best guess basis.

The chapter begins with a discussion of the special importance of experience during infancy. It is the author's personal view that there is too little evidence which has been collected with too primitive measuring devices, to support any firm position on the importance of infant experience. It would also be risky to assume that such experience is unimportant.

Some issues considered by the author include the need for data on differential human development, and problems in studying the effects of early experience on development. Included in the latter are how patterns of caretaking behavior, the physical environment, the social environment, the daily schedule, etc. can be studied, as well as how they change during the subject's development.

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Normative information about human development and research on the effects of early experience on human development are reviewed in considerable detail. Finally, those with responsibility for rearing children are urged to sponsor and encourage more field research (such as intervention programs) in addition to more basic research on the whole infant, studied throughout infancy, the varieties of patterns of experience, and the cumulative effects of those experiences.

* This chapter provides a detailed summary of research on infant development and experience. Although it has not yet been published, it is unfortunately already somewhat out of date; the most recent articles cited were published in 1969, and the research on which those articles were based was undoubtedly conducted one or more years previously .

Yarrow, L. J.
The crucial nature of early experience. In D. G. Glass (Ed.), Environmental Influences. New York: The Rockefeller University Press and Russell Sage Foundation, 1968, 101-113.

The potential contribution of research on infrahuman primates to the understanding of the role of early experiences in human development and behavior is discussed.

Implicit in the concept that early experiences are important for later development is the assumption that the young organism is extremely sensitive. This implies that the young organism is higly receptive, highly modifiable, and extremely vulnerable to noxious stimuli. This concept of generalized sensitivity of the immature organism is modified in the critical period hypothesis, which postulates differential sensitivities at different developmental periods. One implication is that the crucial variables of maternal care may change with the developmental period, and time intervals may be very short. Much more differentiated norms are needed, for both humans and animals.

One of the most significant problems in studying early experience effects is that of conceptualizing and measuring the early environment. In humans, early experience has almost been equated with early maternal care. It is suggested that maternal personality characteristics and attitudes be viewed as determinants of maternal behavior rather than as primary antecedent variables.

In his work, the author has used three categories to study maternal behavior: 1) amount and varieties of stimulation, 2) maternal activities concerned with tension reduction, 3) the learning conditions under which the stimuli are provided. The environment can be assessed in relation to these categories.

The unidirectional model (the child as a passive recipient of his environment) should be replaced by an interactional model of the environmental stimuli and organismic characteristics.

In studying early experience, the dependent variables should be specified in terms of both short and long term effects; a basic problem is to determine the extent to which earlier behavior patterns are precursors of later ones.

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While experimental research approaches have some advantage (and tend to be used with non-human primates), the author feels that natural situations, particularly natural experiments, should be used to investigate early influence issues in human development (for example, comparison of child care institutions with differing philosophies, study of various early separation experiences, foster home placements).

The author has found in his study of adopted children that there appear to be two critical age points related to intensity and likelihood of disturbance: three months and six months. Between three and six months, disturbances seem to be reactions to environmental change, whereas after six months they seem to be reactions to the loss of a significant person. However, by five years, it becomes difficult to relate time of early separation to disturbance, and children functioning least well at five tend to have histories characterized by recurrent traumatic experiences. A single experience may have different effects at different points in development, and cannot be viewed in isolation.

It is suggested that the heuristic and theoretical contributions of infrahuman studies of early experience must be differentiated from the substantive findings. There are many pitfalls in cross-species generalizations.

Yarrow, L. J. & Goodwin, M. S.
Some conceptual issues in the study of mother-infant interaction. American Journal of Orthopsychiatry, 1965, 35, 473-381.

Conceptual and methodological problems involved in the selection of variables for studying maternal care in infancy are discussed. Unfortunately, there has been a tendency to view maternal care in terms of a unidirectional socialization process from the orientation of pathology, so that mothers are seen as either rigid or flexible, warm or hostile, etc. The authors argue that a differentiated view of maternal care is needed, with complex diagnostic and evaluative concepts (in the way that personality has been viewed). It would also be helpful to fit maternal care variables into a systematic framework of environmental and experiential conditions.

The maternal care variables used in the authors' research are discussed; there are four main categories. The amount and varieties of stimulation provided by the mother are categorized as being passive (derived from physical contact) or active (response-eliciting); the environment is also analyzed for sources of inanimate stimulation (play materials, etc.). Variables concerned with need gratification and tension reduction include physical involvement, the immediacy of response to the infant's expression of need, and the soothing quality of maternal behavior. The variables concerned with conditions under which need gratification and stimulation are provided include both stimulus adaptation (appropriateness and individualization of stimulation), and communication (responsiveness of the mother to the infant's communication attempts). The variables dealing with maternal feelings and attitudes include the emotional involvement of the mother, individualization (both the degree of awareness of the infant's individualized characteristics and the ability to differentiate self from the child), and acceptance of the child as he is.

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One difficulty with these variables is that they differ in level of abstraction and the degree to which they can be operationalized. Stimulation variables are simplest to deal with, interactional variables are rather difficult, and most difficult are those concerned with affectional relationships. For example, are there differing impacts on infants of the same "raw behavior" from mothers with different motivations?

One criterion of the usefulness of a differentiated analysis of maternal care (in contrast to a global rating) would be whether there are selective relationships between particular variables and specific aspects of infant behavior. Data indicating that this is so are described.

The degree to which mother-infant interaction is a reciprocal process is important for conceptualization. The authors have found some consistency (particularly in physical care) in individual foster mothers when their care of different children is compared, but striking differences in such areas as amount of physical contact and achievement stimulation are also seen. In addition, there are some very "aggressive" infants who seem to manage to elicit similar kinds of responses from two different mothers (e.g. foster and adoptive). It is likely that neither mother nor infant is the sole determiner of the relationship. The authors have noted disturbances occurring in cases of incompatibility, e.g. in activity level.

Theoretically, the effective environment of the infant must be defined, and this means that his sensitivity must be ascertained, in the sense of general vulnerability to trauma, in terms of threshold of responsiveness to stimuli of various intensities and modalities, and in terms of capacity to make fine discriminations and respond to subtle nuances in feeling. The question of differential sensitivity during different periods in infancy is very important. Another perplexing issue is the problem of how underlying feelings and attitudes are communicated. The authors suggest that from knowledge of neurological development it must be assumed that infant perceptions are at the level of patterns of stimulation associated with feelings of tension and pain or of satisfaction.

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